VOLUME XXIV NUMBER TEN

THE NATIONAL GEOGRAPHIC MAGAZINE

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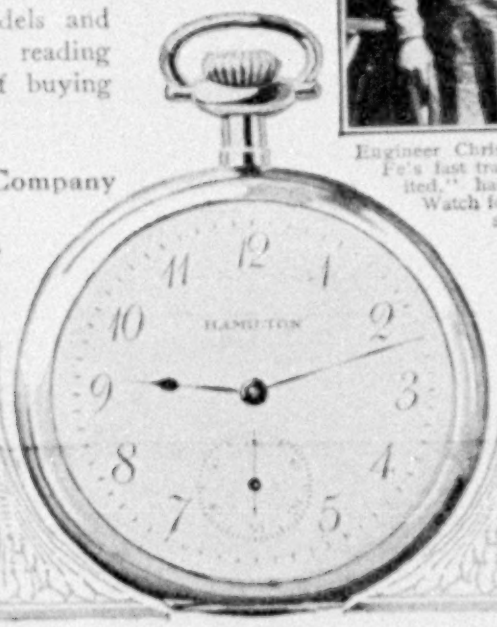

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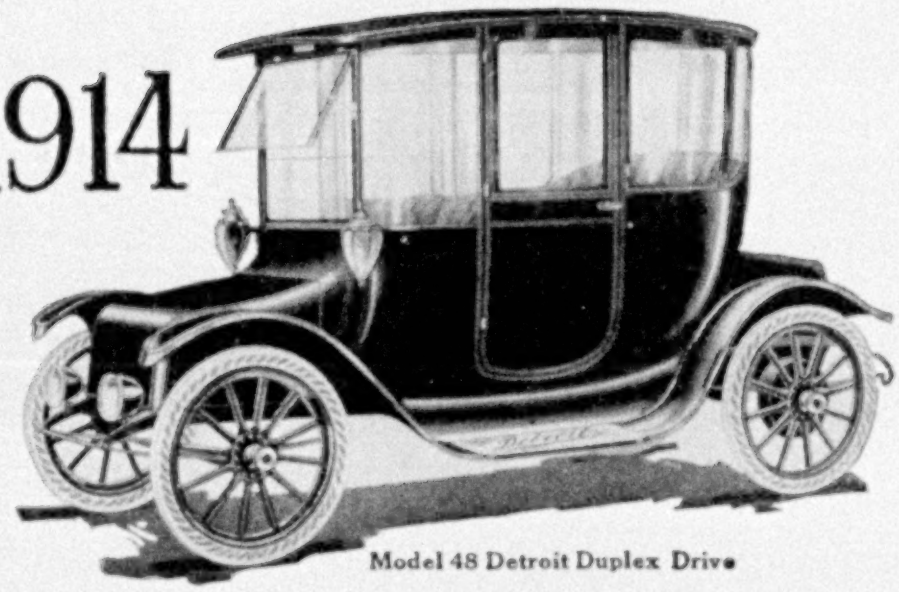

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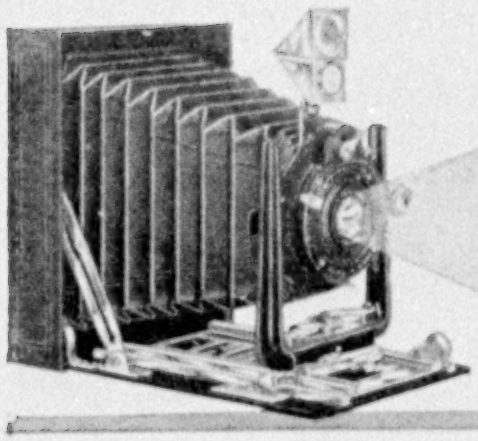

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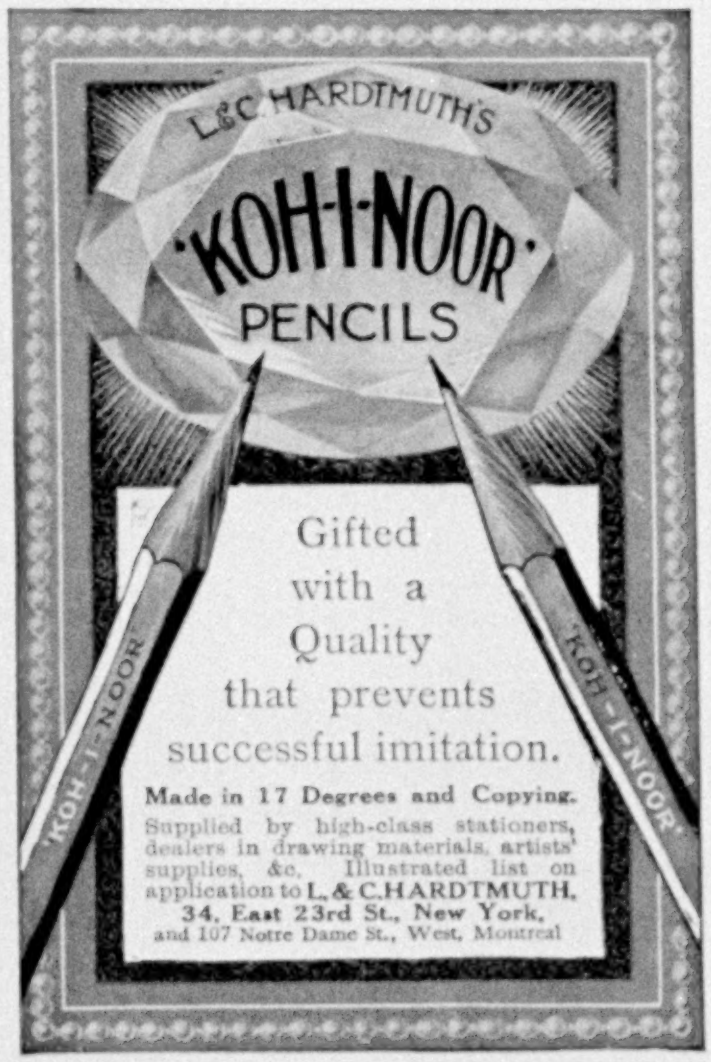
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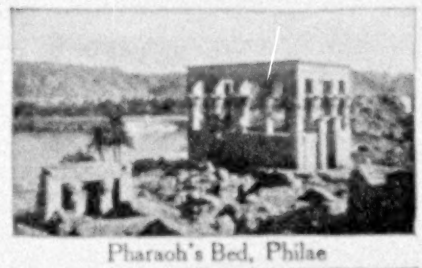

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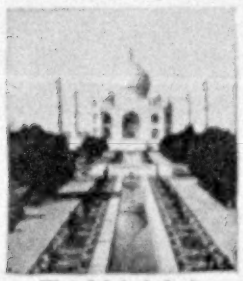

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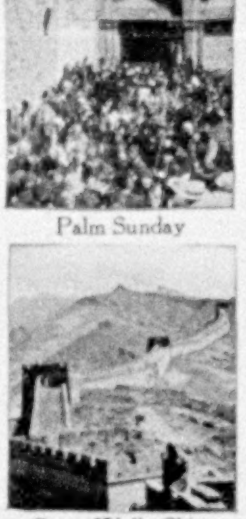

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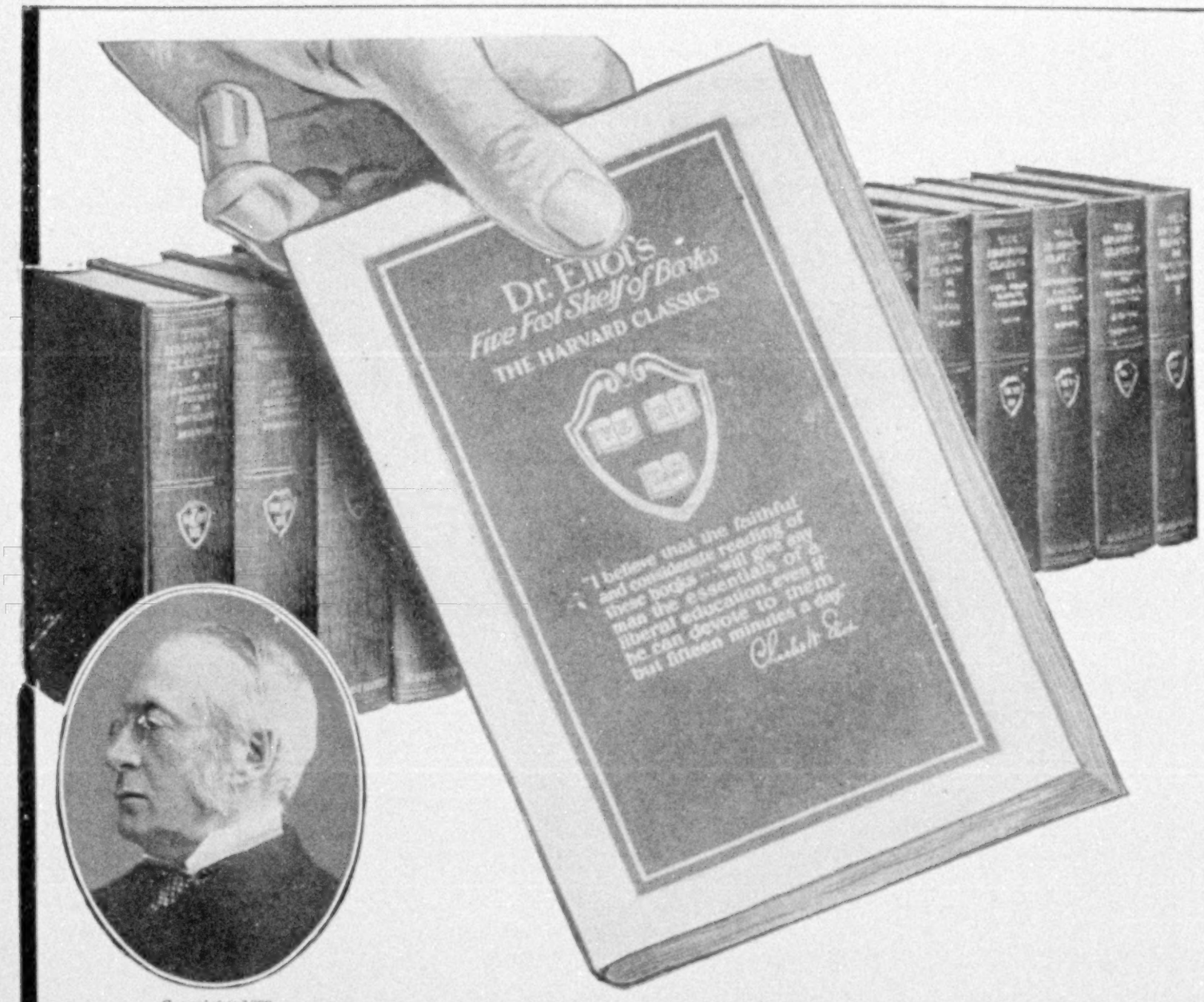
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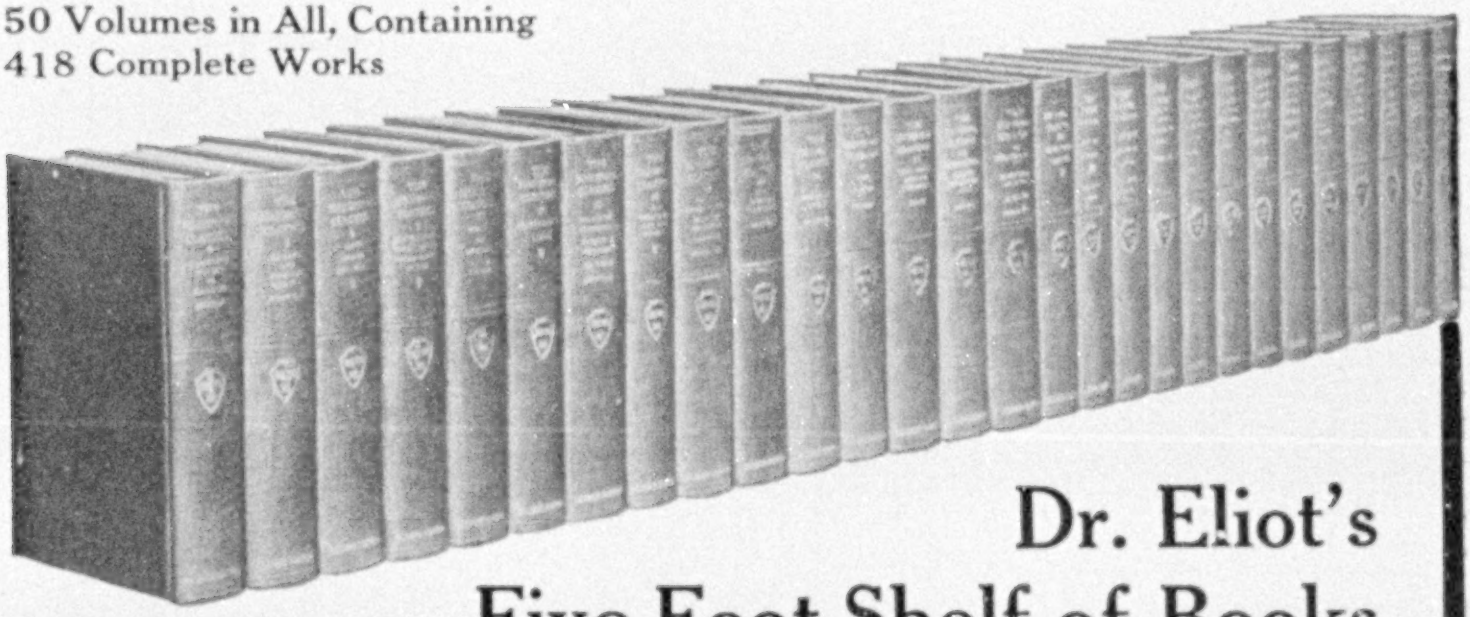

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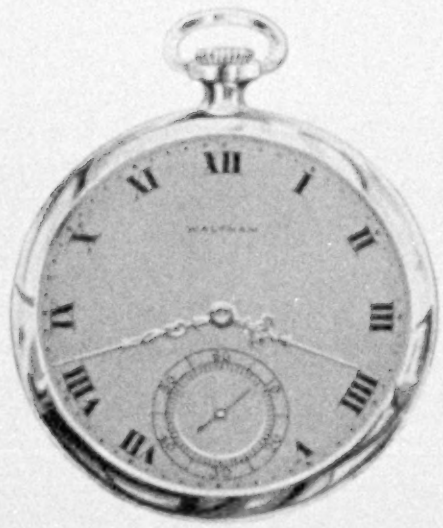

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VOL. XXIV, No. 10 WASHINGTON OCTOBER, 1913

THE NATIONAL GEOGRAPHIC MAGAZINE

RUMANIA AND HER AMBITIONS

By Frederick Moore

Author of "The Balkan Trail"

SINCE the days of the Russo-Turkish war of 1877, when the Rumanians crossed the Danube and aided the Russians in driving the Turks out of the province of Bulgaria, there has been peace, but not much good feeling, between the Rumanians and the Bulgarians. The lack of sympathy between the two has culminated in recent years in a close association on the part of Rumania with the Germanic Alliance, and in the last few months in a successful war for an adjustment of frontiers.

In an article on the Balkan War, published in a recent number of the National Geographic Magazine,* I mentioned that the claim of Rumania was based on the fact that the other Balkan States annexed by their conquests a number of settlements of Vlachs (sometimes called Kutso-Vlachs), who are remnants, like the Rumanians, of ancient Roman invasions of the Balkan Peninsula.

It is my plan in this article to expand that explanation and to show also why the Balkan Question is not the simple matter of Mohammedan domination in certain Christian provinces invaded and subjected by the Turks five or six centuries ago.

It was natural for the Rumanians to contract the fever of territorial acquisition which affected all the other Christian countries of the Balkans in recent years. The departure of the Turks from Europe was recognized as a certainty for many years, and Greece, Bulgaria, and Servia were laying claim to sections of Turkish territory according to their own censuses, respectively, of Greeks, Bulgarians, and Servians populating Turkey.

There was bitter rivalry among these states, so bitter that the stay of the Turks in Europe was delayed for a number of years. Into this conflict Rumania saw her opportunity to enter and assume a sort of protectorate over the scattered settlements of Vlachs or Wallachs (apparently a Slav name for Italian).

THE DREAMS OF THE BALKAN POWERS

This claim was somewhat far-fetched, but the fever of acquisition ran high and was infectious, though the Rumanian pretensions were not out of keeping with those of the other states. The Greeks, for instance, aspired to re-create the Byzantine Empire, while the Bulgarians and the Serbs looked to the re-establishment of the kingdoms respectively of their greatest ancient czars.

Only a year ago were the Slav States and Greece able to sink their differences and come to a decision about the division of Turkey in Europe, whereafter the attack on Turkey soon followed. But Rumania had too little to gain and too much to risk. She was not in a mood to enter a Balkan alliance, and the other states

* February, 1913.

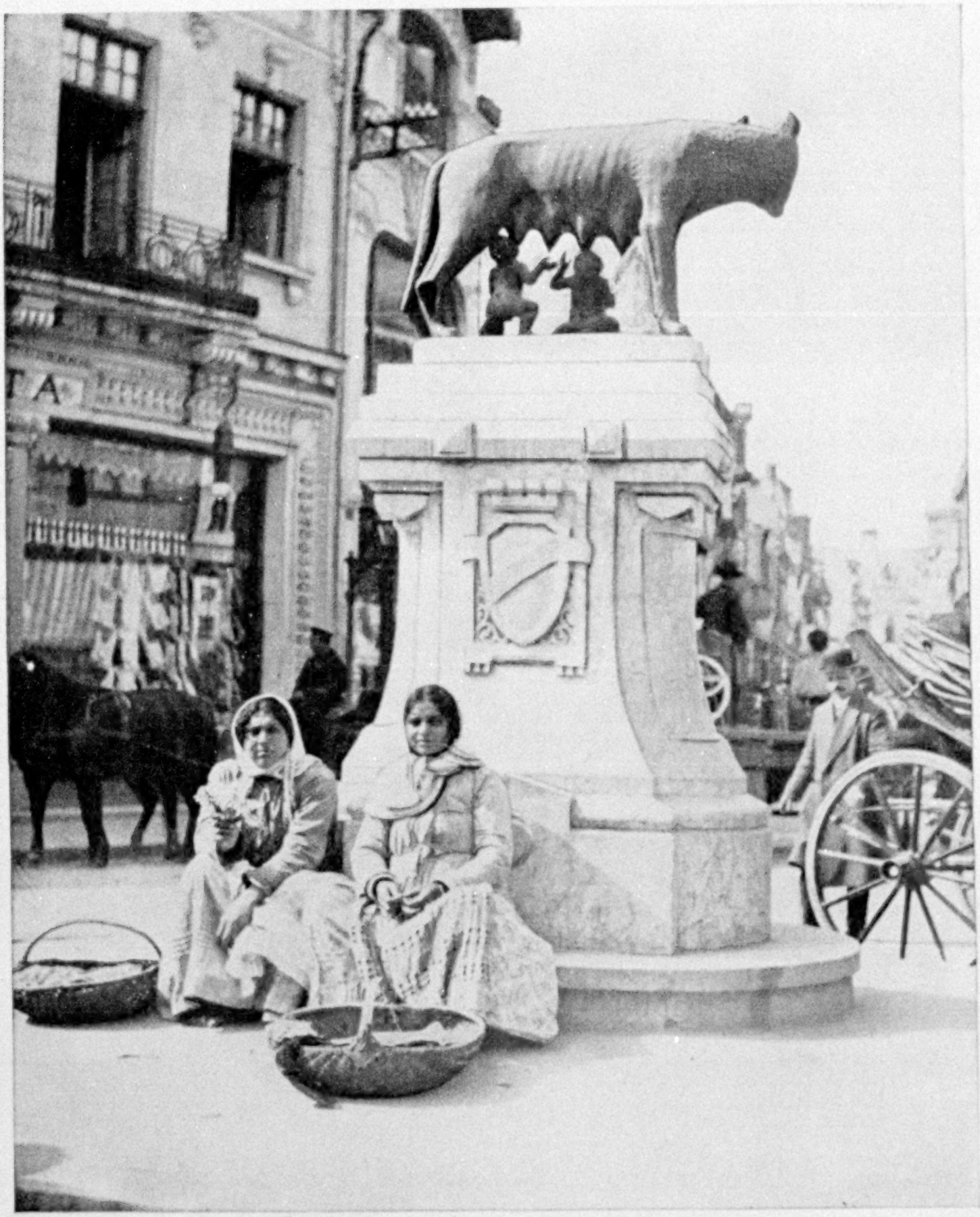


Photo by Frederick Moore

THE SACRED WOLF OF ROME IN BUCHAREST

The Rumanians are intensely proud of their descent from the ancient Romans and take every opportunity of emphasizing it. Here in the streets of Bucharest is a bronze statue depicting a scene familiar to every student of Roman history. It shows the twin brothers, Romulus and Rhemus—the legendary founders of Rome—being suckled by the wolf. The two infants—so runs the legend—were sons of the god Mars by Rhea Silvia, daughter of the king of Alba Longa. They were placed in a basket by their grand-uncle and sent adrift in the River Tiber. Cast up on what was afterwards the site of Rome, they were suckled by a she-wolf and fed by a woodpecker until rescued by the shepherd Faustulus, who became their foster father.

Photo by Frederick Moore

RUMANIAN VETERANS

These are peasant soldiers who took part in the Russo-Turkish war of 1877, wearing the medals won at Plevna, where the Rumanian soldiers under Prince Charles, the present king, greatly assisted the Russian forces and covered themselves with glory by the assault and capture of the Grivitza redoubt.

understood her temper and attitude and did not invite her. Furthermore, Bulgaria, especially, did not want her to participate, for Rumania had no frontier contiguous to Turkey, and if she was to receive territorial compensation for the Vlach population over which she had spread her wing it must be at the expense of Bulgaria.

Rumania's claim on Bulgaria was made as soon as the armistice was signed at Tchatalja, early in December last. It

Photo by Frederick Moore

RUMANIAN INFANTRY ON PARADE

The army of Rumania has for many years been maintained in a high state of efficiency. On a peace footing it consists of five army corps, and its normal strength is about 5,000 officers and 100,000 non-commissioned officers and men. The soldiers here shown are in their winter uniforms—black greatcoats and black caps, set off by a dark green feather.

Photo by Frederick Moore

A GROUP OF CADETS AT THE INFANTRY SCHOOL

This picture shows one of the curious features of life in the Balkans. In the center is one of the Mohammedan subjects of King Charles. He enters the military service of the country just as do his Christian neighbors, but he preserves the characteristic fez even in his uniform.

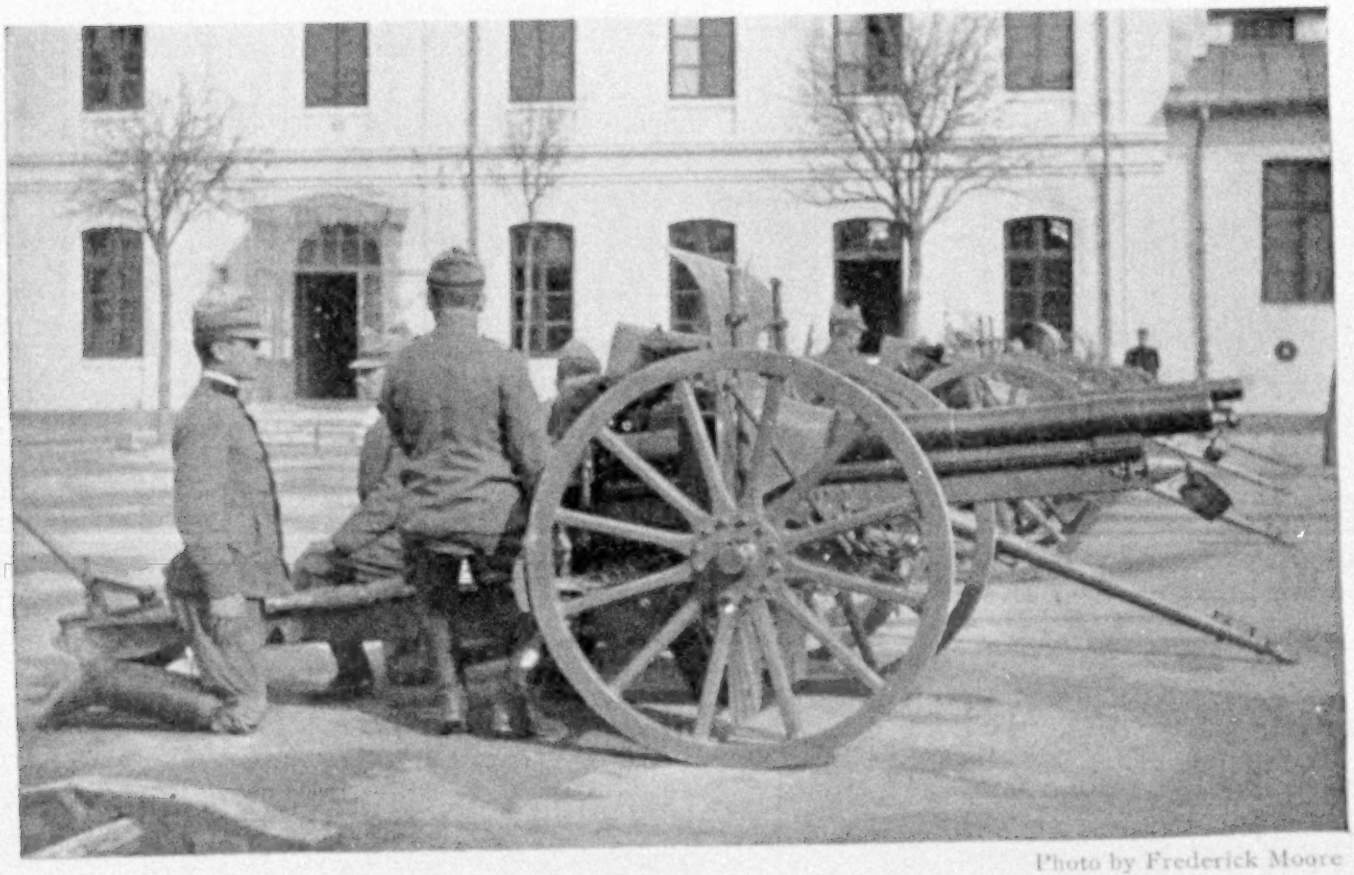
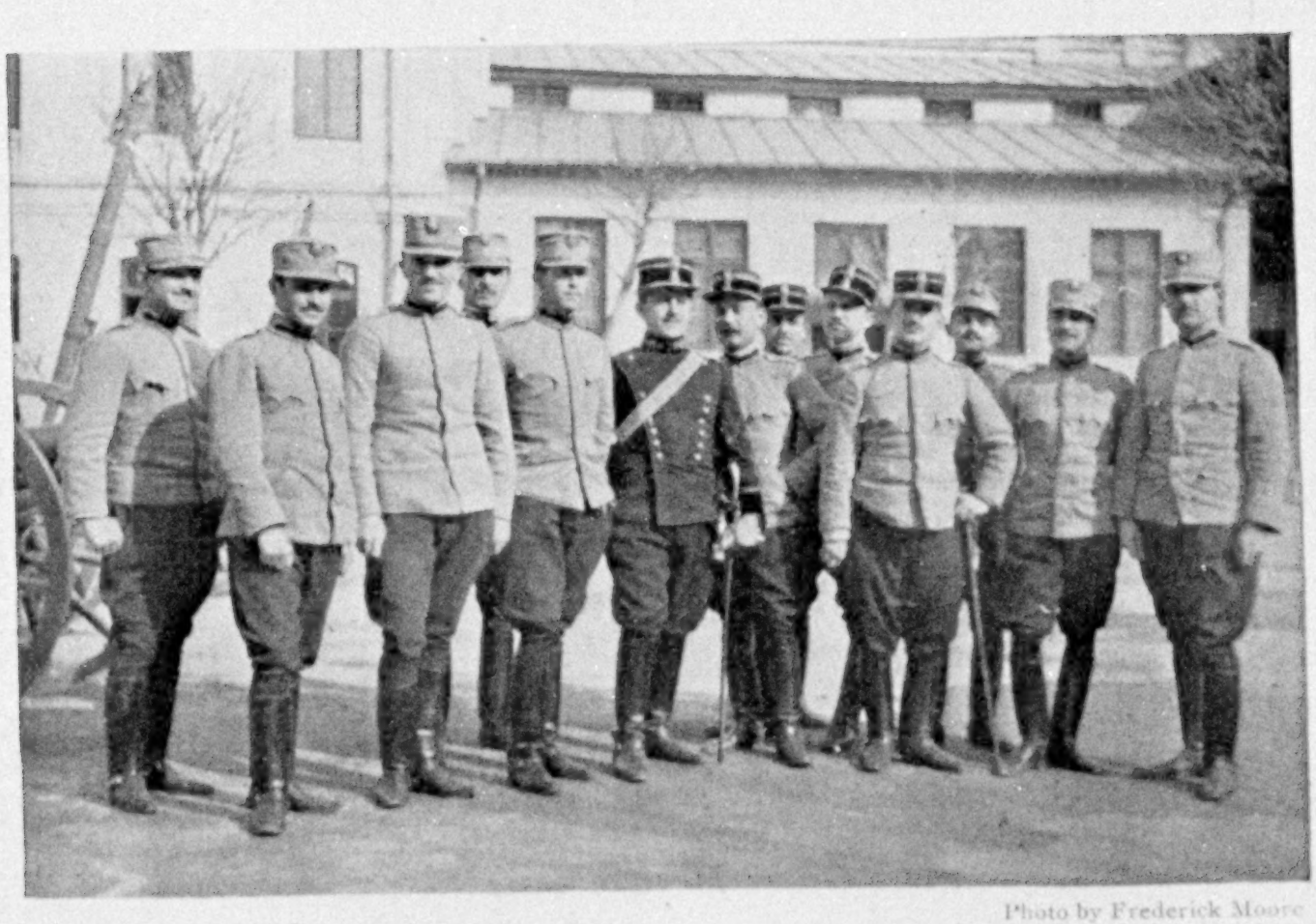


Photo by Frederick Moore

AT PRACTICE WITH THE GUNS

When King Charles first went to Rumania he found the army consisting of raw levies, with no uniforms and in some cases armed only with sabers and pikes. Educated under the famous German general, Moltke, and having served with distinction in the Danish war of 1864, King Charles possessed just the equipment to raise the army of his adopted country to a thoroughly efficient standard, and today, as the result of his efforts, the Rumanian army compares favorably with any in Europe.



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YOUNG RUMANIAN OFFICERS

In this group the young officers look as smart and soldierly as one could wish, and quite worthy of their fathers, who fought so valiantly at Plevna

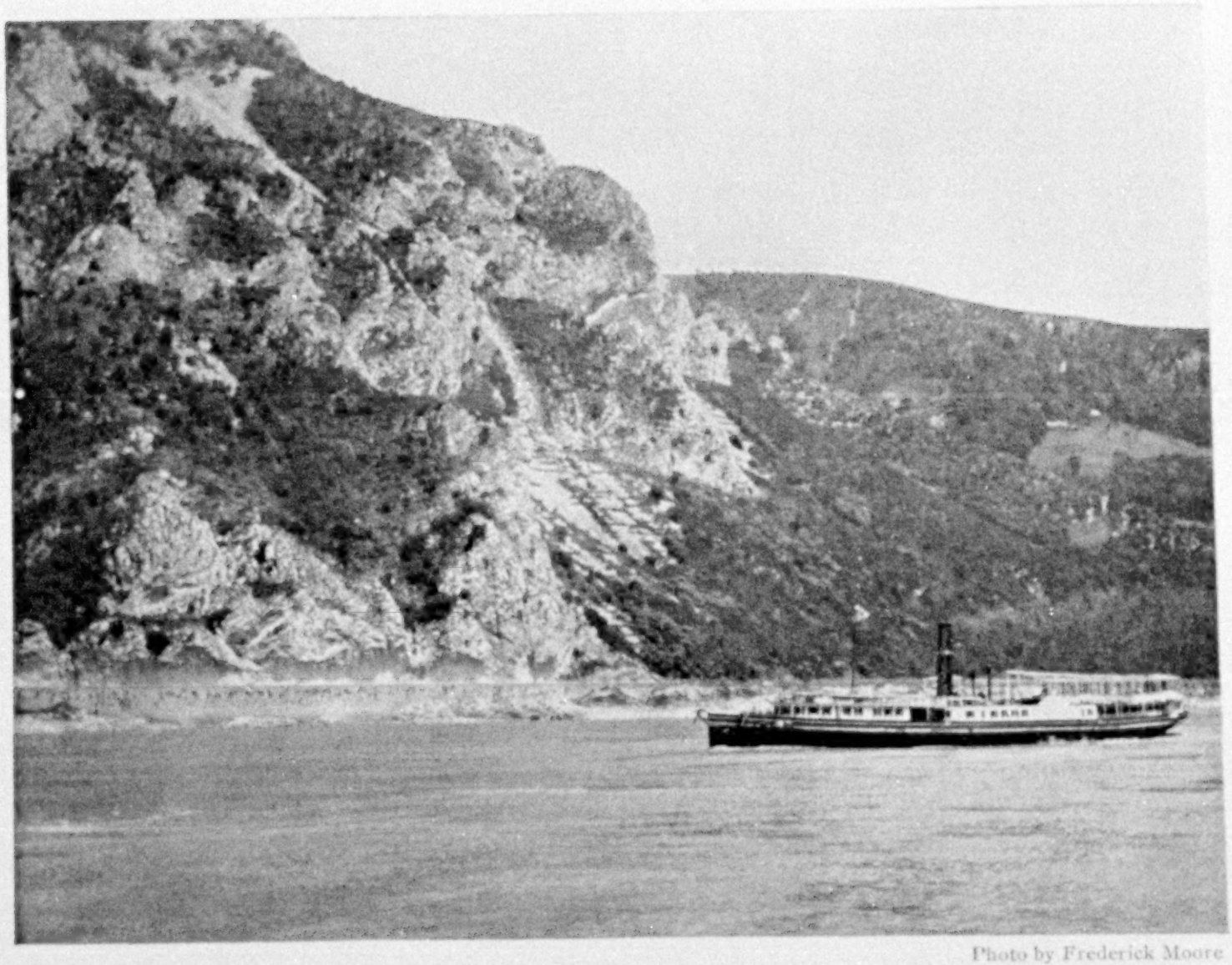

Photo by Frederick Moore

RIVER BOAT BENEATH THE CLIFFS OF THE DANUBE

"The country is far in advance of other Balkan countries. Fast express trains run daily the length and breadth of the state; ports on the Danube collect and ship the produce of the country to various parts of the world; a fast Rumanian steamship line carries European mails from Constanza, on the Black Sea, to Constantinople and other eastern centers of commerce" (see text, page 1079).

looked to the outside world (as a notable London *Punch* cartoon represented the situation) as though Rumania were acting the part of highwayman in attempting to rob Bulgaria, while the latter, employing her forces against Turkey in the south, was defenseless on her northern frontier.

But the fact cannot be disputed that the claim of Rumania had been known and understood for years.

HOW RUMANIA GAINED ITS NEW PROVINCE

At the renewal of hostilities between the Turks and the Allies a member of the Rumanian government, in conversation with a Bulgarian statesman in high authority, proposed to join the alliance of the Balkan States and to set the Rumanian army also in motion against the Turks. But the offer came too late. The Bulgarians then knew their strength, both in the field and in European politics, and they had no desire to let the Rumanians cross the frontiers, knowing that too many of their military men would like to remain there.

The statesmen in authority in Rumania, having by that time decided to accept any adjustment of territory that could be obtained peacefully, agreed to accept the offices of Russia as intermediary. The Bulgarians likewise agreed, and there the matter stood until Bulgaria fell out with her former allies—Servia and Greece. Rumania thereupon joined the latter, and by a brief war, which cost her but little in blood or money, obtained the fertile province of Silistria.

Now, why has there been no friendship

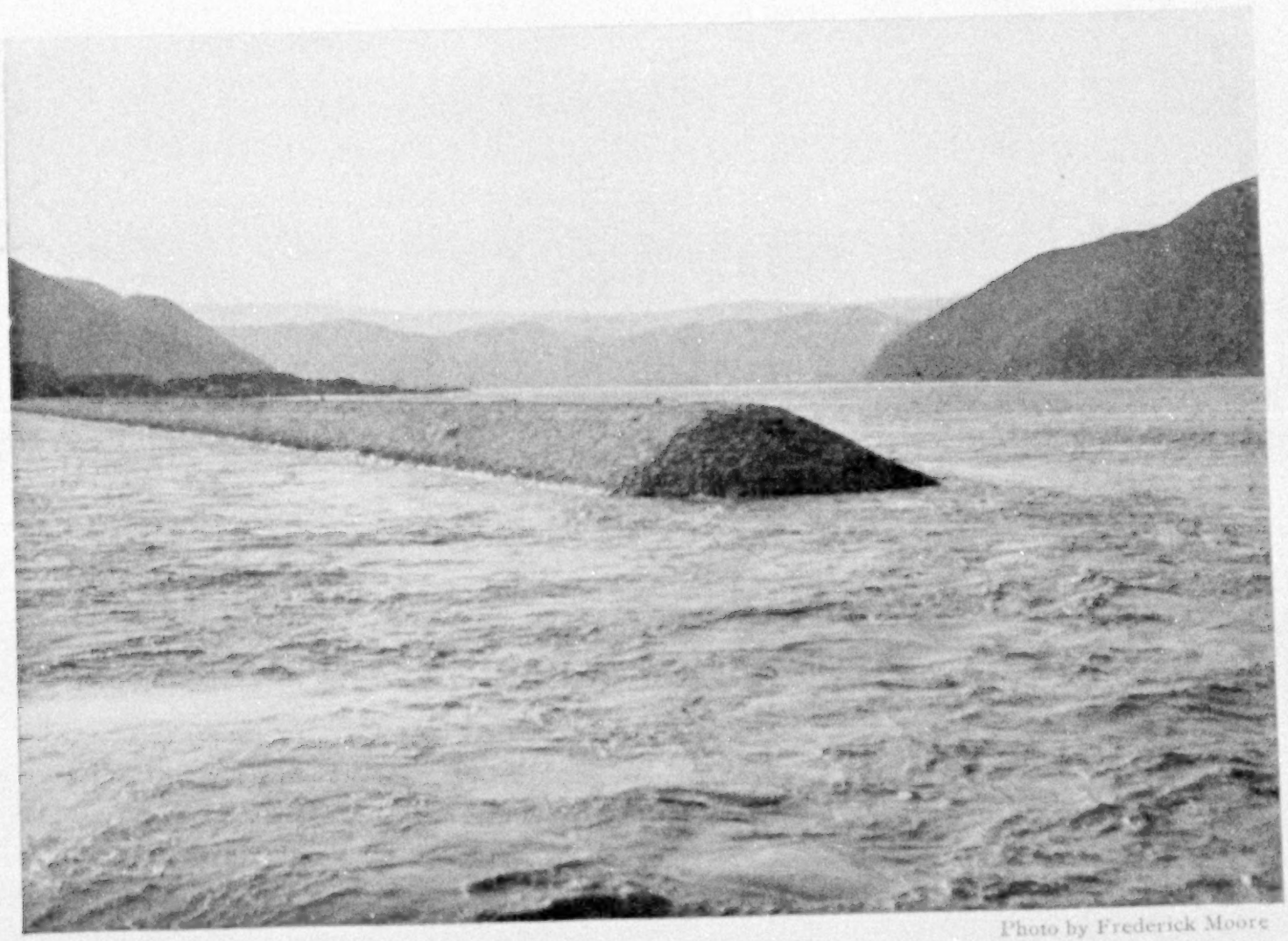

Photo by Frederick Moore

THE IRON GATE OF THE DANUBE

Most people think of the famous Iron Gate as a narrow and gloomy defile where the waters of the river are hemmed in by stupendous cliffs. In reality the Iron Gate is a fairly wide portion of the river, but guarded by rocks, which at high water are entirely hidden from sight. Through these dangerous rocks a deep, wide channel has now been blasted, and a jetty formed from the stone thus obtained is shown in the picture.

between these two Balkan States whose peasants fought side by side in a terrible struggle against the Turks only 35 years ago? It is an interesting history.

Like most of the other Balkan peoples, the Rumanians are the descendants of one of the great pre-Turkish invasions of southeastern Europe. They are the children of those Romans who conquered the ancient Dacians, intermarried with them, and gave them the Latin language, which has continued, with few variations, to this day.

When the Roman Empire began to shrink and other invasions swept over these outpost provinces of Rome, this Daco-Roman race took refuge in the mountains and maintained their distinctive characteristics and language in the same way that several other Balkan peoples also succeeded in doing. When the invasions had passed through the country they again descended to the plains more or less an intact race.

The final successful invasion of the Balkan Peninsula, that of the Turks—whose desire was to conquer Europe for Mohammed—came at a time when these people were beginning to develop ideas of nationality. Their local governments were medieval and primitive, and they seem to have been quite as barbarous as the Turks. The Turks, indeed, were greatly superior to them in several ways, especially in military organization, and therefore succeeded in obtaining domination over them.

THE SUBTLE GREEK HOSPODARS

Soon after the Turkish conquest the Greeks, though always boastful as a race of revenging themselves upon the Turks, were yet willing, personally, to make themselves rich by conducting the civil

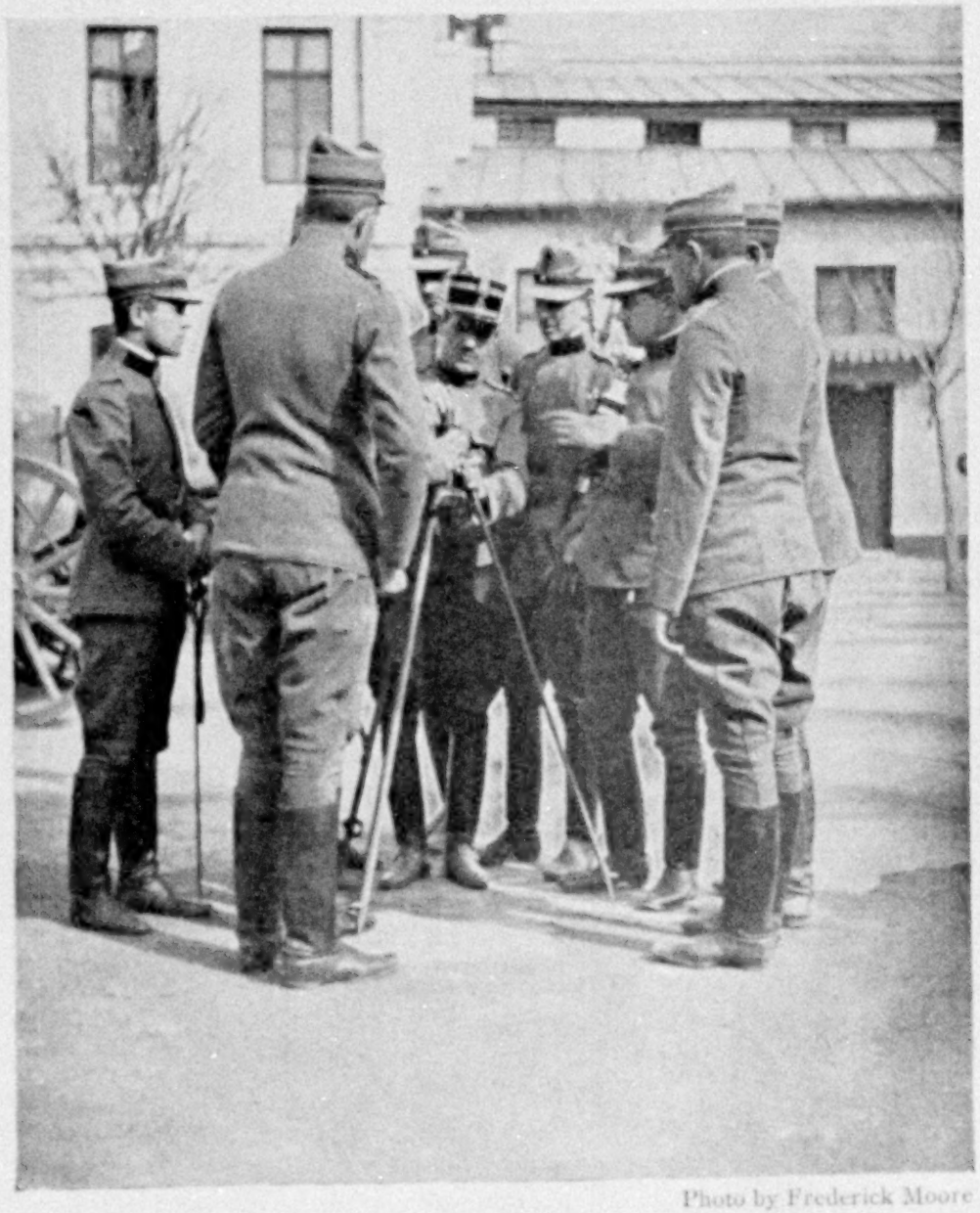

Photo by Frederick Moore

LEARNING THE ART OF WAR

Here is a group of young Rumanian officers learning how to sight for artillery fire in the grounds of the very up-to-date Artillery Academy. The Rumanian army is equipped with the latest Krupp quick-firing guns, both in the horse and field artillery.

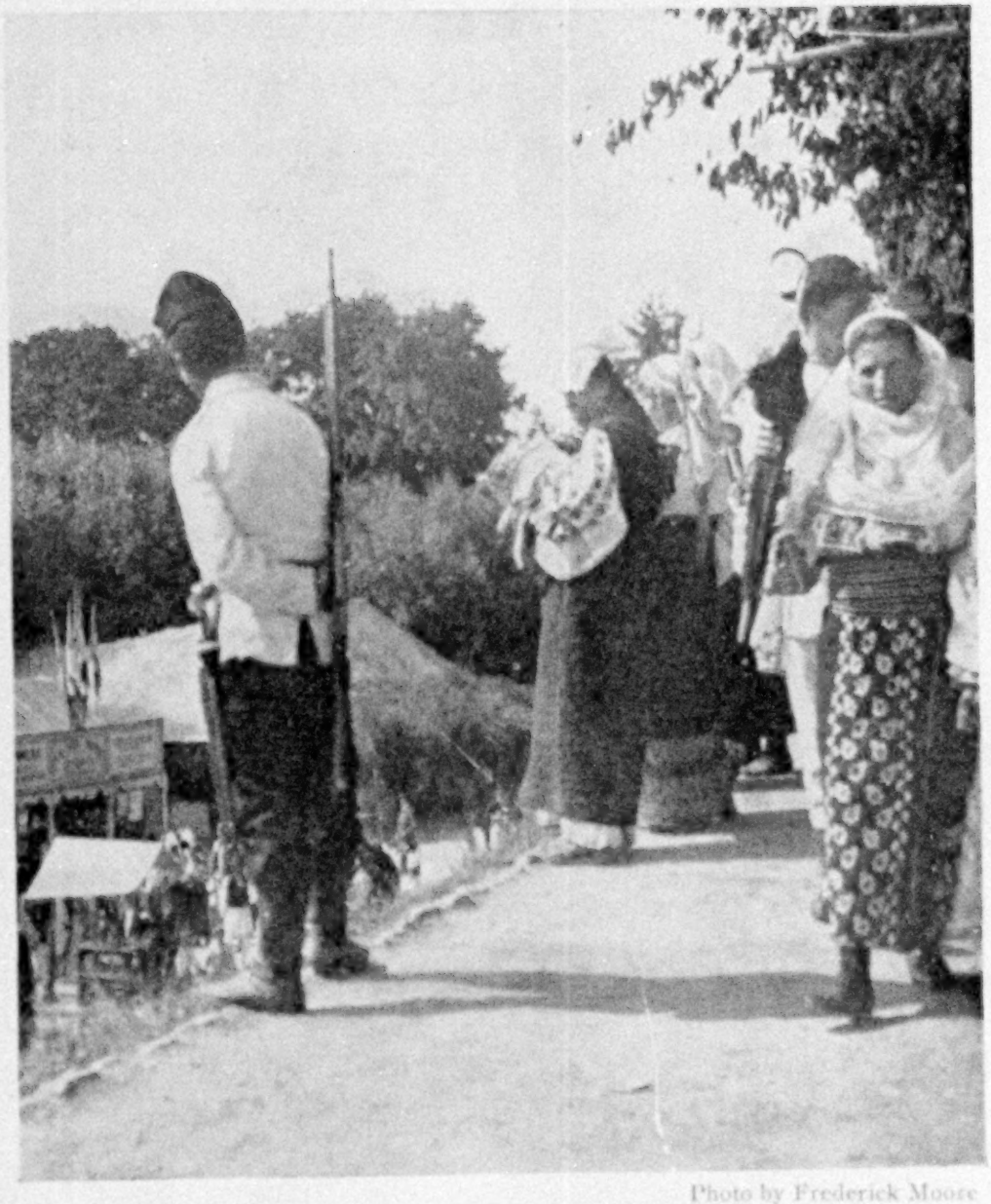

Photo by Frederick Moore

PEASANTS AT THE FAIR

One of the pleasantest experiences of a tourist in Rumania is a visit to a country fair. The peasants delight in music and dancing and enter into the fun with the greatest zest, while their picturesque costumes add charm to the scene. Note the soldier regarding the amusement booths with rapt anticipation.

Photo by Frederick Moore

PEASANT MOTHERS, OLD AND YOUNG

The peasants marry very early in Rumania, and the ceremonies accompanying a country wedding still preserve the tradition of marriage by capture. In some districts a flower is painted on the walls of the cottage which is the home of a girl of marriageable age. Note how curiously the babies are bundled.

affairs of state for their conquerors, the Turks being indifferent and incapable administrators. The Greeks obtained many of the civil offices in which profits were to be made, and early in the 18th century, by one of the many strange systems adopted by the Turks, they were appointed princes (called *hospodars*) of the trans-Danubian provinces of Moldavia and Wallachia, which now form the kingdom of Rumania.

These *hospodars* obtained their places by purchase from the Sultan. Enormous sums had to be paid for the posts, and the Greeks who bought them and became princes for a time had to recover their outlay quickly, for they could hardly get to Jassy and Bucharest before the palaces of those respective capitals were again put up for sale to other Greeks in Constantinople. In the pressure put by the *hospodars* on the people of Moldavia and Wallachia the first seeds of Rumanian dislike of the Greeks were planted.

In the early part of the 18th century the pressure of Russia, the Colossus of the North, began to be felt seriously throughout Europe and especially in the Balkan Peninsula. That pressure has never ceased to exist, although it has always been held back successfully by the other European powers.

In order to be rid of the Turkish domination, the provinces that were later to unite under the Rumanian flag accepted the protection and military assistance of the Russian czars. On many occasions, indeed, they sought it—in the name of the cross—for Holy Russia was of their own Christian faith, that of the (Greek) Orthodox Church.

Nine times in all the armies of Russia traversed Moldavia and Wallachia in marches against the Turks, and almost or

XUM

Photo by Frederick Moore

FRUIT SELLERS AT A STREET CORNER: BUCHAREST

Great quantities of fruit are grown in Rumania. Apples, pears, medlars, cherries, peaches, apricots, and melons are very plentiful, but the greatest attention is bestowed upon the damson, from which a mild spirit, called *tsuica*, is distilled.

quite as many times were the Rumanians—and other Balkan races—saved from Russian domination by the interference of other European powers, sometimes by recourse to arms.

HOW RUSSIAN DOMINATION IN THE BALKANS WAS PREVENTED

In the wars of the czars against the sultans, England—whose policy has always been to oppose the extension of power of the dominating nation of the Continent—took the part of Austria-Hungary. Austria-Hungary could not allow, with safety, the extension of Russian power to her east and south; and England, rightly jealous of her command of the seas, was no more willing that the great Slav State should extend from the Baltic to the Ægean Sea than she would be today to let the Germanic combination of powers similarly cross the Continent.

It was at first the plan of England, under the leadership of Disraeli, to make buffers of the Balkan States between Russia and Constantinople; and now, apparently, it is her desire, as the result of the triple *entente*—the menace of Russia having given place to that of Austria-Hungary supported by Germany—that the buffers shall serve to block any Germanic extension to the east.

In defiance of the will of the Sultan and the powers, Moldavia and Wallachia united in the year 1859 and chose the name of Rumania for their new state. There were fears in Europe—as there were fears in the case of Bulgaria later—that Rumania would become a vassal of Russia and an outpost for her in her march toward the Bosporus and the Dardanelles. But the defiance of Rumania was permitted to pass unopposed.

WHAT CAME OF DEFYING THE POWERS

In 1866 a foreign prince was elected, native princes having proven failures, for one reason, because there were always too many rival pretenders. The choice fell upon Prince Charles of Ho-

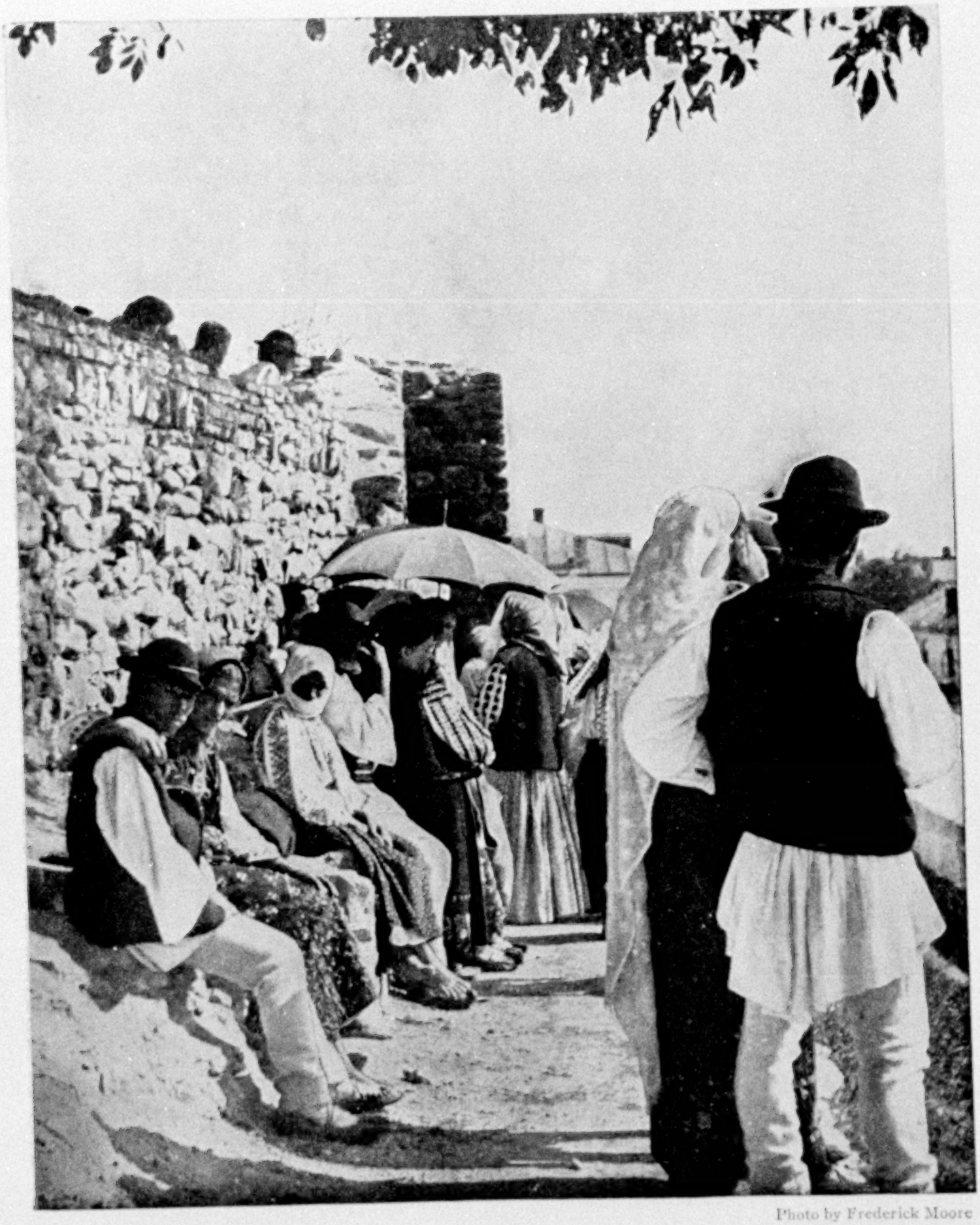

Photo by Frederick Moore

PEASANTS ON A HOLIDAY

Few peasants cling so tenaciously to their national costume as do those of Rumania. White is the prevailing note, for the men wear loose white trousers and long linen blouses, belted at the waist, and the women's skirts are often white, too, but generally gay with embroidery. On holidays both sexes wear short sleeveless jackets of every color of the rainbow, bedecked with gold lace and a wealth of needlework.

XUM

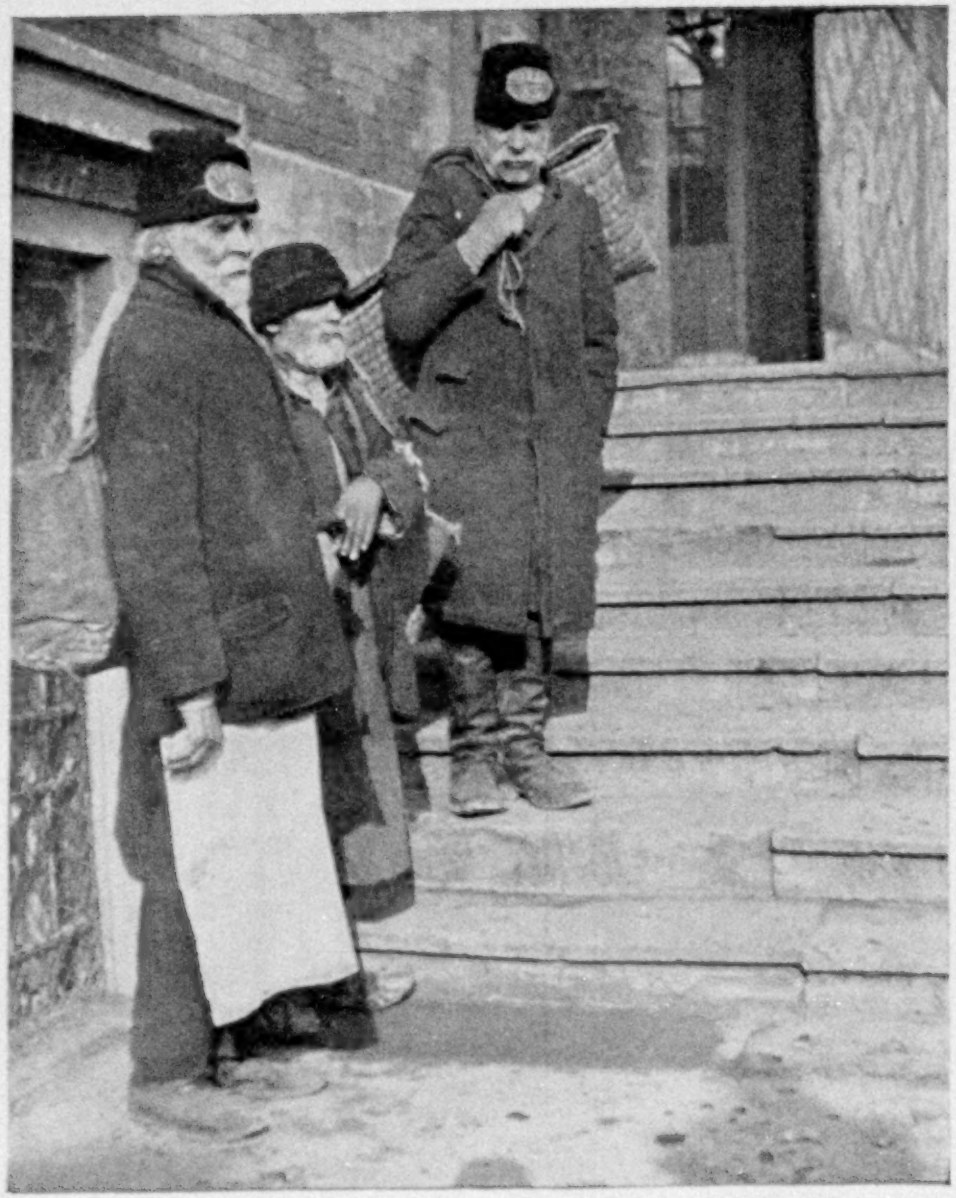

Photo by Frederick Moore

WAITING FOR CUSTOM

Waiting on the steps of the market and in many other convenient spots in Bucharest are the *hamale,* or carriers, who wait to carry home the purchases of their wealthier fellow-townsmen. As in all countries, poverty exists in Rumania; but, taken as a whole, the country is remarkably prosperous.

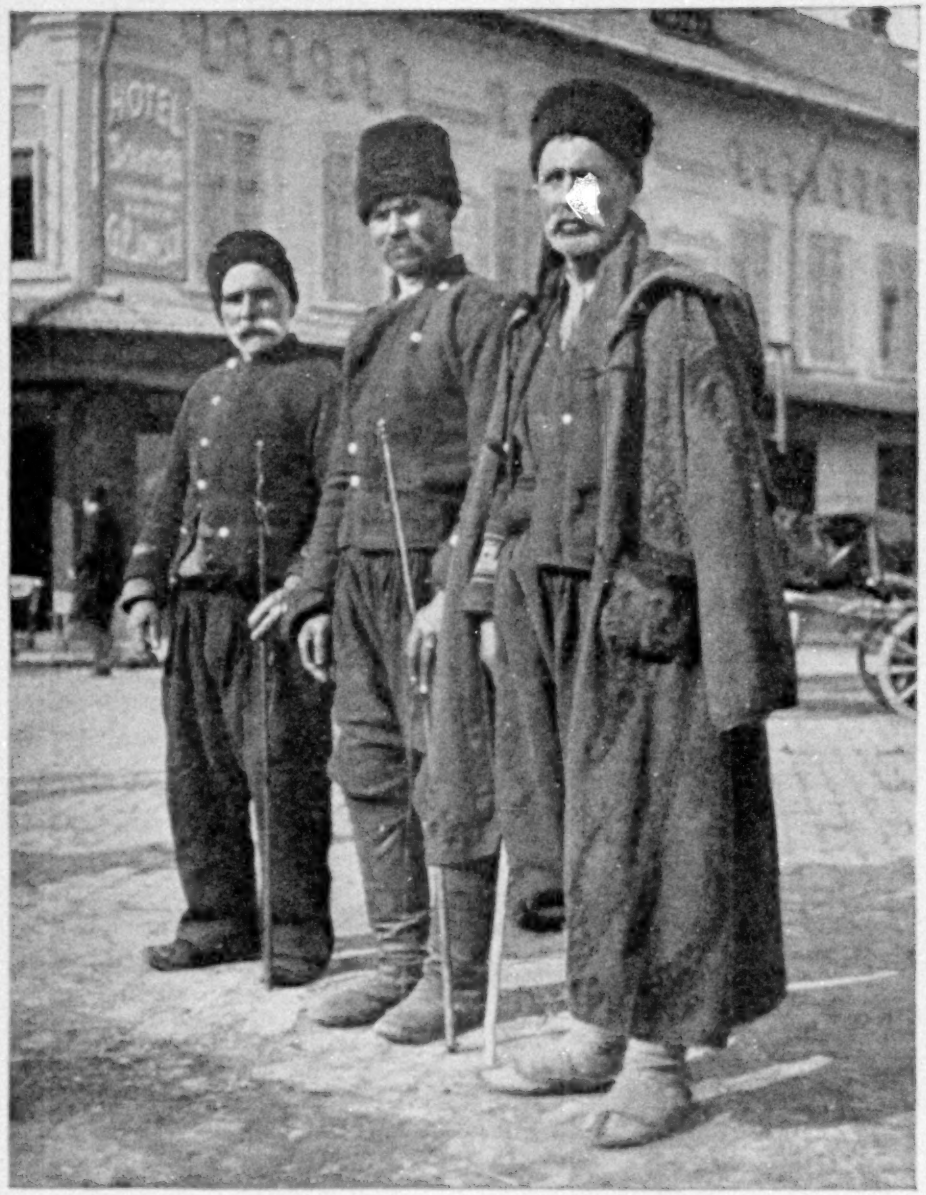

Photo by Frederick Moore

COUNTRY TEAMSTERS IN TOWN

Bucharest has a great transit trade, especially in timber, grain, and vegetables, and consequently teamsters from the surrounding country districts are a common sight in town. While not so picturesque as the peasant, the teamster, in his gray coat embroidered in black, and his blue clothes, adds a touch of color to the crowds of the city.

Photo by Frederick Moore

GYPSY FLOWER GIRLS

The gypsies are very numerous in Rumania, and, like most of their brethren the world over, they are none too fond of work. Consequently they are seldom found in any of the steady manual occupations, as they prefer to be flower-sellers, musicians, peddlers, or to follow any employment which permits them to cling to their traditional vagabond existence.

henzollern-Sigmaringen. The Conference of Paris declared Prince Charles' election void; but, acting boldly on the instigation of Bismarck, this young man of 27 went straight to Bucharest, where he has since ruled with distinguished wisdom, satisfying the very powers that opposed him.

It will be seen that defiance of the so-called Concert of Europe, so strikingly evident in the past 12 months, has precedents in Balkan history.

Prince Charles had received a military training in Germany, and he brought to his adopted country German ideas of discipline and government. In a very few years Rumania bore evidences of his capable influence. Prince Charles obtained from his suzerain, the Sultan—"blissfully unconscious of the use to which they would be put"—permission to organize a militia of 30,000 men.

By one of those several reform movements such as have been seen in Turkey in more recent years, a constitution was proclaimed in Constantinople in 1876, the famous constitution of Midhat Pasha. This constitution—the prototype of that of 1908, which brought similar disasters in its trail—proclaimed the indivisibility and unity of the empire, including the privileged provinces. Indignation at Bucharest was intense, for under the rule of Prince Charles the Rumanians had come to consider the suzerainty of the Sultan a matter of mere form. This was a moment for them to achieve full independence and here was excuse for proclaiming it.

RUMANIA'S PART IN THE WAR OF 1877

To make the issue doubly sure, Rumania signed a secret convention with Russia in April, 1877, permitting the armies of the Czar to cross their country again in order to drive the Turks out of

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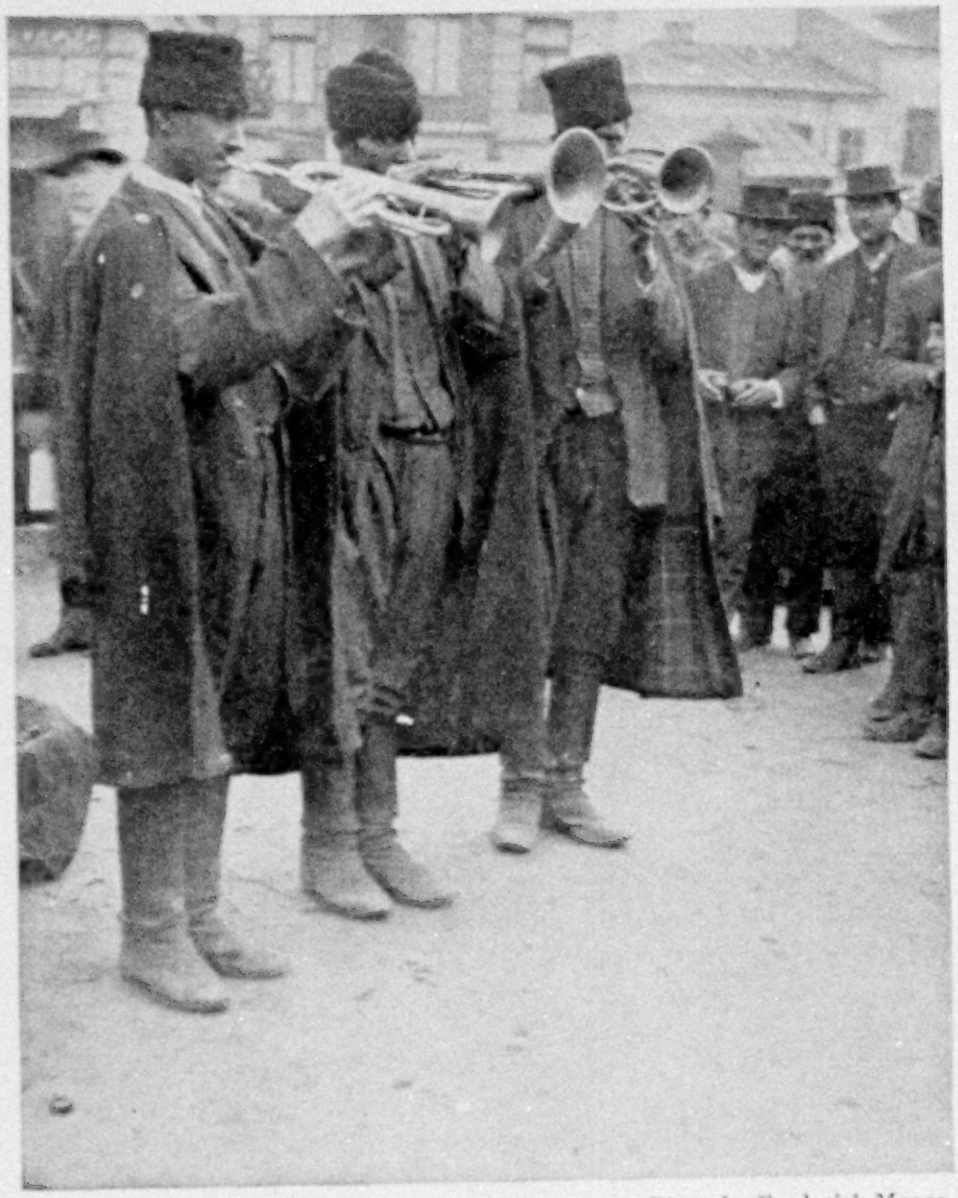

Photo by Frederick Moore

GYPSY STREET MUSICIANS

These gypsies probably learned to play the trumpet during their term of service in the Rumanian army, and now continue playing as a means of livelihood, performing in the streets of the city and at country dances.

Photo by Frederick Moore

GROUP OF GYPSY SHOEMAKERS

The *tzigane*, or gypsies, are a distinct race and speak a language of their own. Mostly converts to the Orthodox Church, they are now beginning to mingle freely with the Rumanians, though until about 1850 they were divided among themselves by caste distinctions and some could be bought and sold like slaves.

Photo by Frederick Moore

A WARM DRINK ON A COLD DAY

Here is an open-air café, such as are not infrequently seen in the streets of Bucharest in winter, and the vender is selling a native warm drink. The Rumanians are a sober people and use the wine of their country very sparingly.

the Bulgarian provinces, where the rebellion and massacres of the previous year had given Russia cause again to interfere in behalf of the Christian subjects of the Sultan.

The Rumanians declared war on their overlord, and offered their army to assist the Czar; but the confident Russians, who had subsequently to mobilize twice the number of troops with which they began the war, declined the assistance of the Rumanians, until after Osman Pasha had repulsed their charges repeatedly, with terrible Russian losses.

Then the Czar sent an appeal, which came to be historic, asking Prince Charles to cross the Danube where he could and come to the aid of the Christian cause. The humbled Russians were willing then to give the prince of Rumania, who marched with his army, command of the combined forces besieging Plevna.

Prince Charles put his newly-trained troops in front of the famous Gravitza redoubt, the most powerful fortress of the Turks; and, when the next assault came, they took it, and, what is more, held it against repeated counter attacks till the city finally fell.

But, as I have said, the friendship of Russia and Rumania did not survive the war. The Rumanians had been for more than a century tampering with fire in dealing with Russia. They should have foreseen, if they did not, that Russia would exact some territorial compensation for this war.

Where was she to get the reward of victory? She was then in the same position that Rumania is now—she had no frontier in Europe contiguous to Turkey.

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Photo by Frederick Moore

IN HIS BEST COAT

When in all the glory of his best clothes, the Rumanian peasant is a delight to the eye, and most gorgeous of all his garments is his great coat. The countryman in the picture is wearing a coat of vivid crimson, plentifully embroidered with yellow and gold thread.

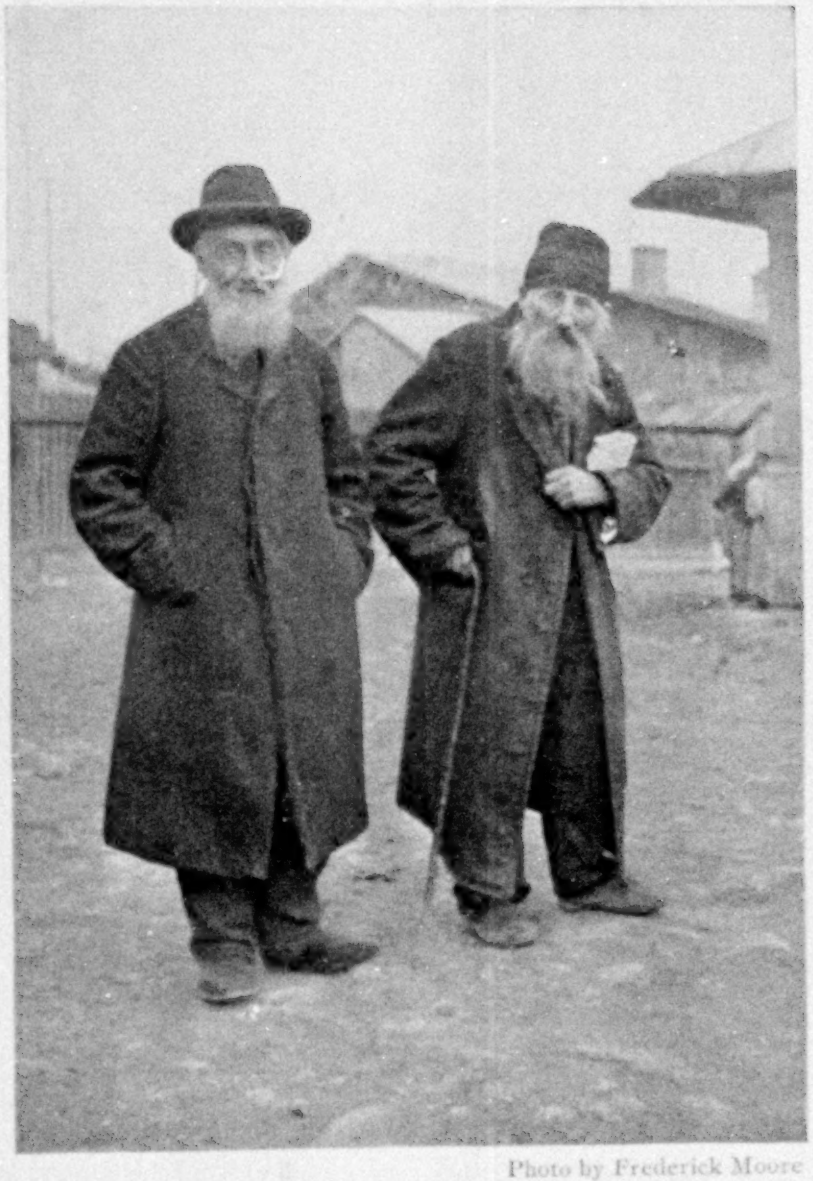

Photo by Frederick Moore

TWO JEWS OF JASSY

"The Jews are probably the most unhappy people in Rumania. The Jews live especially in the province of Moldavia. Great numbers of them have taken refuge there from persecution in neighboring Russian provinces. Though they are free, with rare exceptions, from excessive outbreaks such as have taken place in Russia, they enjoy no political rights in Rumania, nor are they, or any other alien, permitted to purchase or own land outside the cities" (see text, page 1080).

Photo by Frederick Moore

IN THE MARKET-PLACE OF JASSY

Jassy is the capital of Moldavia, a pleasant little city lying among vineyards and gardens. It is the center of a rich agricultural district, and the peasants of the surrounding countryside flock to its market, and, by their picturesque costumes, make it an animated and brilliant scene. Those in the picture seem to be a little afraid of the camera.

Could Russia be expected scrupulously to regard Rumania's integrity?

Had Russia succeeded in dominating the "Big Bulgaria," which she created by the treaty of San Stefano, there is little doubt that she would also have kept the road open for her armies to and from that state across Rumania; but the other powers of Europe again interfered; Russia was threatened with a greater war than she had just concluded, and rather than enter upon it, she consented to a European conference on the question of Balkan frontiers.

The powers feared that the Bulgarians, being Slavs like the Russians, would become but an outlying dependency of the Czar's dominions. The famous Berlin Conference was the outcome.

For many reasons the Rumanians had cause to be thankful. They had made their place in Europe by proving themselves willing to die for the cause of liberty and by showing that they understood the art of modern warfare.

RUSSIA TRICKS RUMANIA

The Russo-Turkish war, like the present one, had had its surprises for the wise heads of Europe. The Rumanians were able to throw off forever those ill-defined ties which were "known at Constantinople as suzerainty and at Bucharest as vassalage."

But they had also to suffer a bitter disappointment—the loss of that portion of Bessarabia which they held previous to the war. In the treaty of peace with Turkey, Russia obtained from the Sultan a section of what is known as the Dobrudja, a territory bounded on two sides by the Danube (because of a great bend

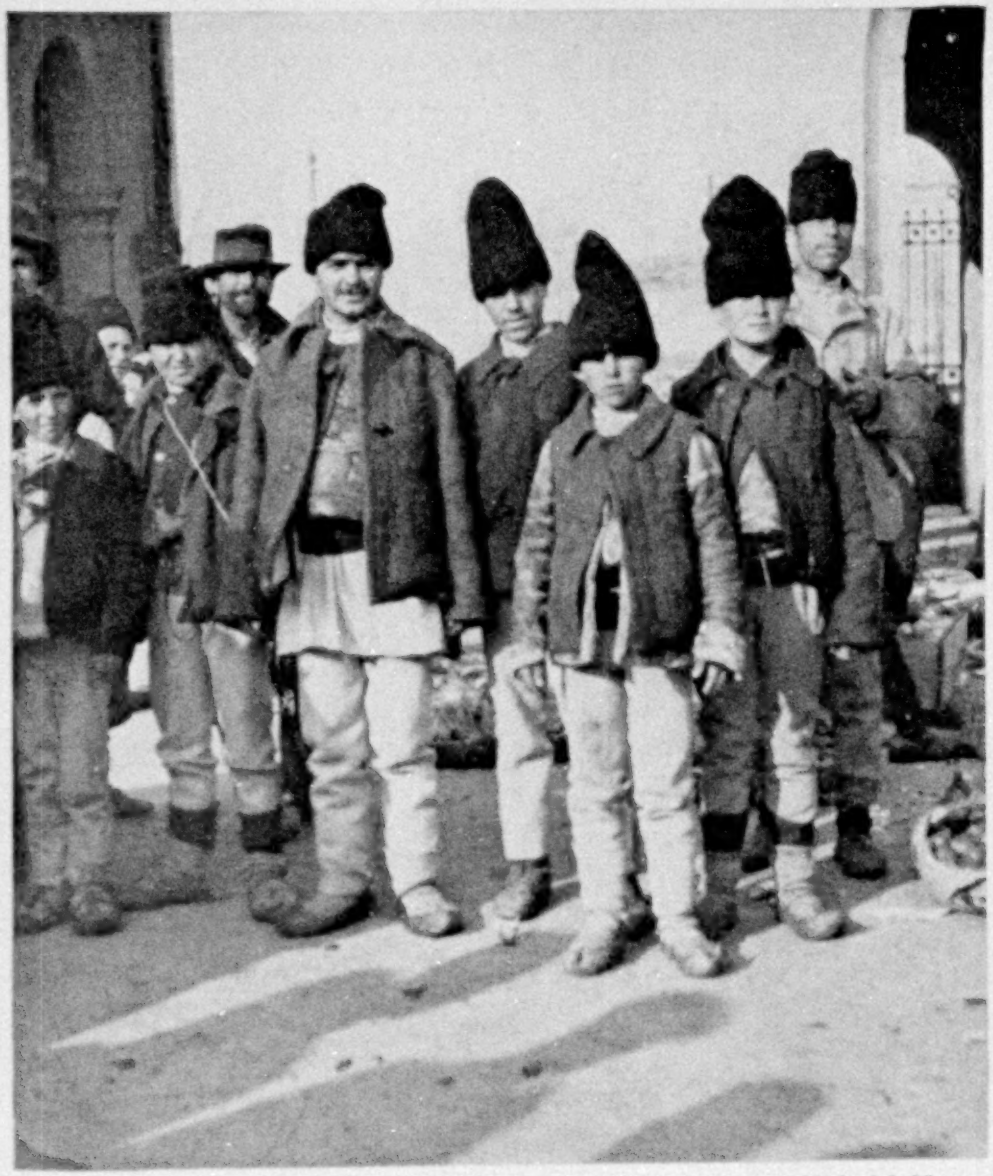

Photo by Frederick Moore

GROUP OF RUMANIAN BOYS

In Rumania boys often swear eternal brotherhood, and the church sets its seal on their choice at a service during which their feet are chained together. This kinship is as binding, both morally and legally, as that of blood. Girls in a similar manner adopt sisters of their choice.

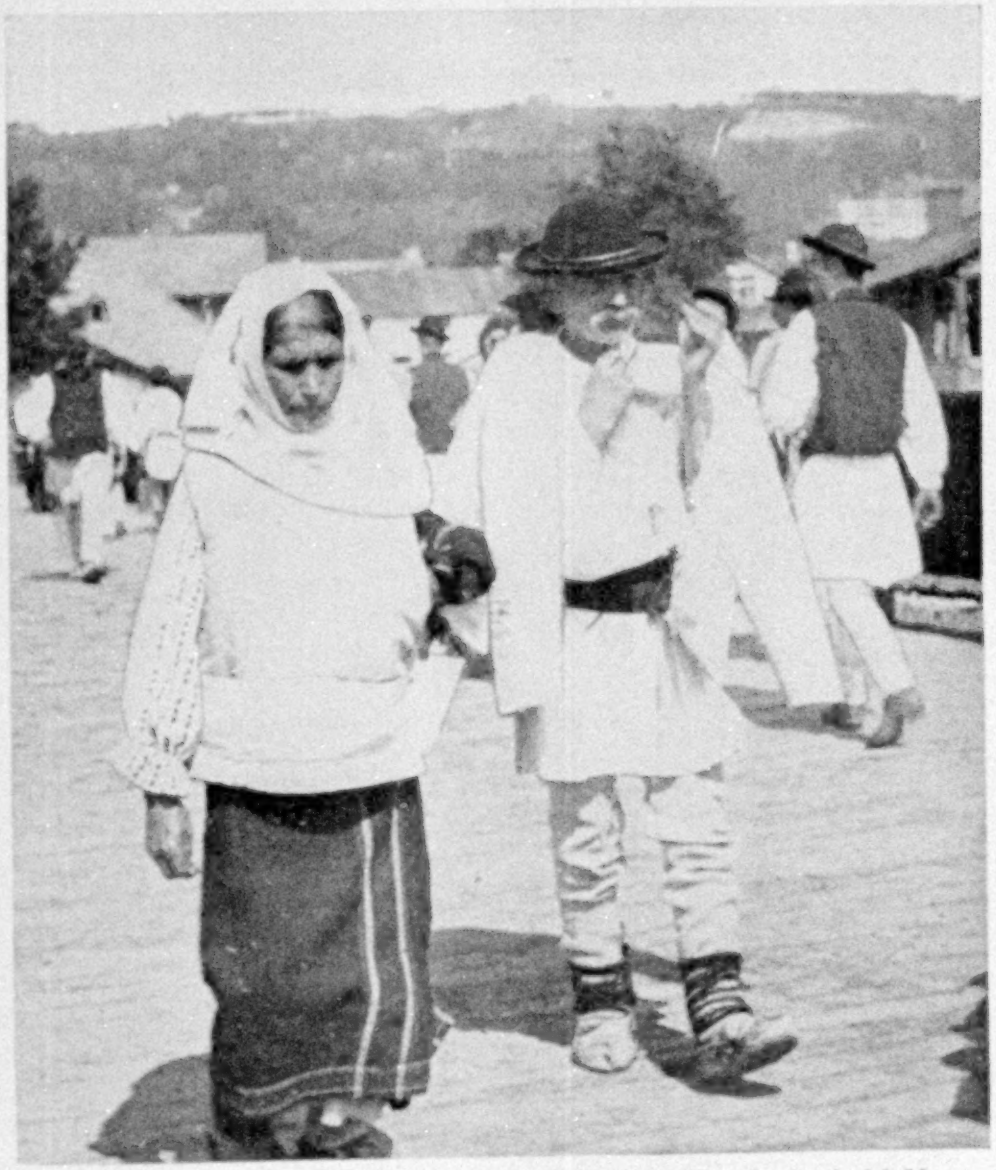

Photo by Frederick Moore

A RUMANIAN DARBY AND JOAN

The Rumanian farmer is a most attractive person and an interesting study as well. Intensely proud and patriotic, he is as frugal as he is industrious. For the greater part of the year he lives on *mamaliga*—a maize porridge—and vegetables. He rarely touches meat, and in some districts pork is eaten only on December 20—St. Hilary's Day. The couple in the picture are highlanders, as can be seen from the man's round hat, the lowlanders preferring the high conical cap of lambs' wool or felt.

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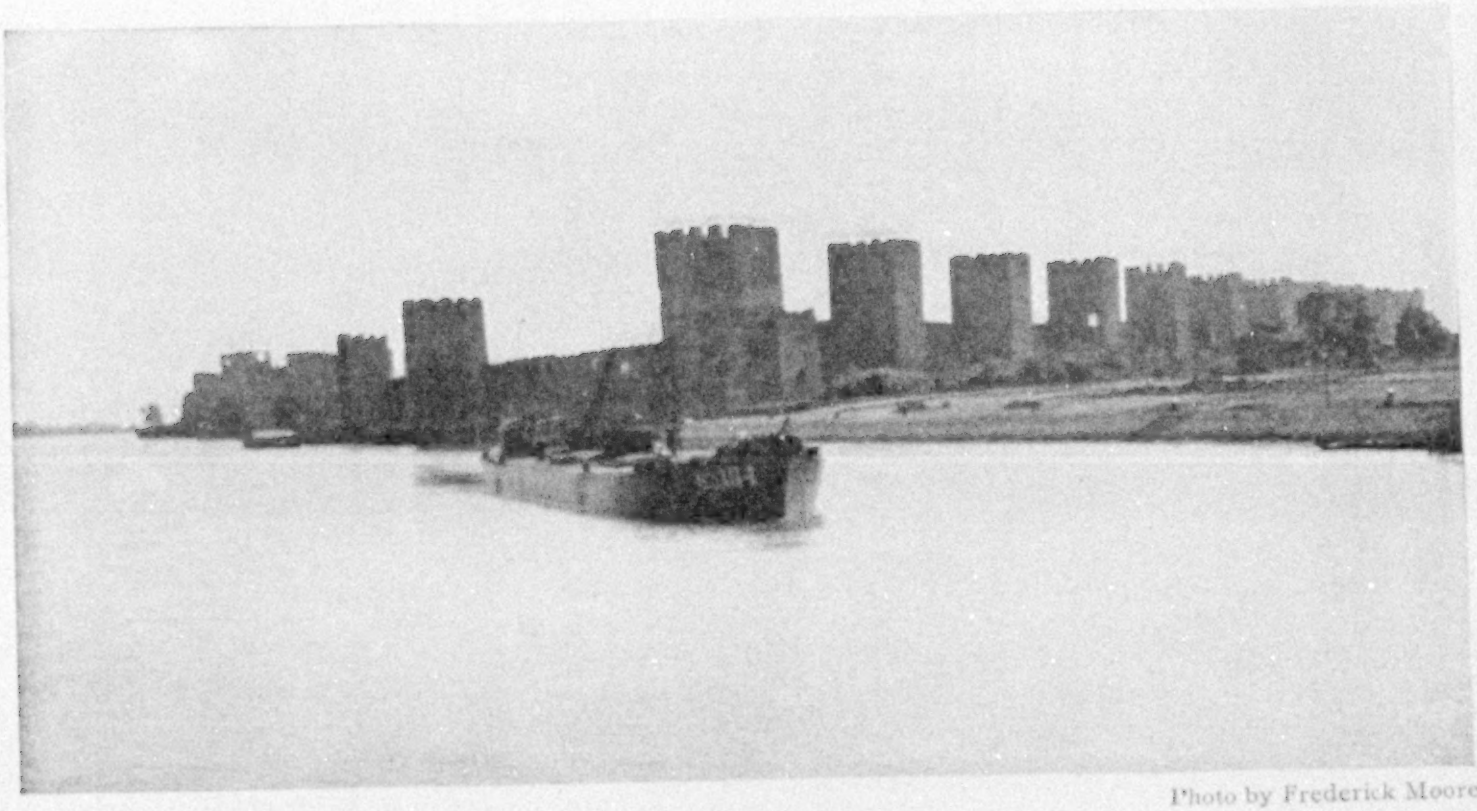

Photo by Frederick Moore

A REMINDER OF THE PAST

Along the shores of the Danube can be seen the remains of old Turkish fortresses, like the one shown in the picture, which stands on the Bulgarian shore, opposite Rumania

in that river), on a third by the Black Sea, and on the fourth by what subsequently became Bulgaria.

The object of this acquisition on Russia's part was to exchange the Dobrudja for the coveted portion of Bessarabia, thereby extending her boundaries south to the Danube. To the Rumanians the exchange was undesirable, for Bessarabia might be called ethnically a Rumanian province, while the Dobrudja, though somewhat larger than the territory surrendered, was peopled mainly by Bulgarians and Turks, racial elements not very easy for a Latin people to assimilate. Furthermore, when the question of the Dobrudja frontier came to be settled, the Russian commissioner proved himself more friendly to the new Slav State of Bulgaria than to the erstwhile ally of his country.

Since the conclusion of the Berlin treaty little has been heard of Rumania until her recent brief war against Bulgaria. The reason is that she has been developing only on peaceful lines and making no "history." So little has Rumania been a danger to the peace of Europe that European newspapers have neglected the city of Bucharest, although, in contrast, they have kept correspondents permanently in Sofia, the little capital of Bulgaria.

Bulgaria has always been a menace since the war of 1877, by which she was created. She has been constantly preparing, from time to time mobilizing, and always intriguing for the day which has come at last, the day for defeating the Turks. On the other hand, Rumanian hostilities to the Turks distinctly subsided after the conclusion of the Berlin Conference, in which Russia showed so definitely that the Bulgarians were her favorites.

UNION OF BULGARIA WITH RUMANIA PROPOSED

It is interesting and important to note that Russia's favor for Bulgaria lasted less than ten years. In that brief space of time the Bulgarians had let the Russians understand very definitely that while they were grateful for their deliverance they had no intention or desire to exchange the rule of the Sultan for that of the Czar.

They declined the dictation of Russian agents, and acted contrary to Russia's policy to such an extent that the Czar withdrew his diplomatic agents and his military advisers and instructors, and for

Photo by Frederick Moore

THE ATHENEUM: BUCHAREST

This building, used as an art gallery and museum and occasionally for literary conferences and concerts, is regarded as one of the best examples of modern Rumanian architecture.

Photo by Frederick Moore

THE GOVERNMENT SAVINGS BANK: BUCHAREST

"Bucharest is generally a surprise to visitors from other countries. Few expect to find anywhere in the Balkans a capital that can worthily be called a 'little Paris,' yet Bucharest is worthy of this title. It is a city with broad, clean streets, on which are to be found good stores and splendid public buildings; and there are avenues of beautiful homes, in which the distinctive architecture of the country is displayed with remarkable effect" (see text, page 1079).

Photo by Frederick Moore

THE NATIONAL FLAG AND ITS ESCORT

Here we see the Rumanian colors, belonging to one of the regiments, with its escort of five men and in charge of an officer

a number of years diplomatic intercourse between Sofia and St. Petersburg ceased to exist.

During this period (the first Prince of Bulgaria, Prince Alexander, having abdicated because of his difficulties with Russia) the Bulgarians appealed to Prince Charles, who had now become king of independent Rumania, to become also Prince of Bulgaria. Had the king accepted, a union of Bulgaria and Rumania would have been effected; but King Charles feared to oppose the government of Russia, then in a surly temper because of the growing independent spirit of the Balkan States. King Charles declined the offer. But the present Czar of Bulgaria, then Prince Ferdinand of Saxe-Coburg-Gotha, went to Sofia as Prince Charles had gone to Bucharest, in defiance of certain Powers.

WHY THE RUMAN DOES NOT LOVE THE BULGAR

To return to the account of Rumania's hostility to the Bulgars. There was no more territory for her to conquer from the Turks. She considered that it would do Rumania no good, and yet would aggrandize Bulgaria and make the latter (instead of Rumania) the foremost Balkan State if the Bulgarians should succeed in bringing about a successful war against the Turks.

Rumania's resentment toward Russia and jealousy of Bulgaria went so far, indeed, as to assume the form of friendliness to their enemy. At one time reports were current of an alliance between Rumania and the Sublime Porte, and such an alliance might even have been consummated had the Rumanian government, and especially King Charles, not

Photo by Frederick Moore

ON A BUCHAREST BOULEVARD

Next to the fine Renaissance building, which contains the general post-office, stands a characteristic little Rumanian church. The Orthodox (Greek) churches are almost all small and built in the traditional Byzantine style, with very narrow windows and surmounted by a dome or central tower, with four attendant turrets.

recognized the feeble political position of the Ottoman Empire.

Rumanians, whose argument was different prior to their emancipation, would contend in recent years that the Turk was a good ruler, and that it would not be well for civilization if his possessions in Europe should be further curtailed. It is true that the Bulgarians are a vigorous people and undoubtedly a potentially dangerous neighbor, who might, as the Rumanians fear, attempt at some future date to unite all Bulgars by taking the Dobrudja from Rumania. But there seems to have been no sufficient, tangible reason for the Rumanians permitting their hostility to develop before it was really due. Such, however, is the way antipathies come to exist between nations in this day.

After the Russo-Turkish war the Rumanians seem to have realized suddenly the grave dangers they had run by giving Russia the privilege of marching through their country. Seriously conscious, then, of their grave geographical position, they began to prepare their defenses, so that they should be formidable allies, at least, of the powers hostile to the Slavs.

THE WONDERFUL PROGRESS OF RUMANIA

Universal military service was instituted, frontier defenses constructed, and a network of railways laid down with strategical as well as economical design. It is significant that but one line of railway forms a junction with Russia, though roads to Hungary are connected wherever commerce warrants. The nucleus of a navy has been established also on the Danube and the Black Sea.

Photo by Frederick Moore

OLD AND NEW IN BUCHAREST

Standing among the tall modern buildings of "the little Paris" is this gem of old Rumanian art. The exterior of this church is embellished with frescoes of the saints set amid beautiful arabesque work in the most vivid colors. The cloister at the side, in harmony with the church, exhibits the characteristic arch of the native architecture.

Whether there is a secret treaty between Rumania and the Triple Alliance of Germany, Austria-Hungary, and Italy is not known, but at any rate Rumania is recognized as a silent partner of the two Germanic powers that border Russia.

The Rumanians consider themselves a much superior people to their neighbors. Prior to the present war they did not like to be called a Balkan people, and it would seem that even now, in spite of the prowess displayed by the other Balkan States, they are still reluctant to be classified with them.

It is true that their country is far in advance of other Balkan countries. Fast express trains run daily the length and breadth of the state; ports on the Danube collect and ship the produce of the country to various parts of the world (see page 1062); a fast Rumanian steamship line carries European mails from Constanza, on the Black Sea, to Constantinople and other eastern centers of commerce, and several cities, both in size and style, resemble more closely the cities of Europe than the other Balkan capitals.

Bucharest is generally a surprise to visitors from other countries. Few expect to find anywhere in the Balkans a capital that can worthily be called a "little Paris," yet Bucharest is worthy of this title.

It is a city with broad clean streets, on which are to be found good stores and splendid public buildings; and there are avenues of beautiful homes, in which the distinctive architecture of the country is displayed with remarkable effect (see page 1076). The peculiar architecture of

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Photo by Frederick Moore

A COACHMAN OF BUCHAREST

Many of the coachmen of Bucharest are immigrants from Russia and wear the characteristic Russian costume of their trade, as shown in the picture. Most of them belong to a peculiar Russian secret sect and are called the *Skoptsi*, or, in Rumania, the *Lipovans*. Their idea of attaining salvation is through a curious and repulsive form of asceticism.

Rumania will compare favorably with that of any other European state. There are also boulevards in Bucharest, boulevards in the sense which that term implies in Paris.

Political ideals are much the same here as in other Balkan States. Political parties take their turns in office, and to a certain extent indulge in a recognized limit of peculations. As a result taxes are very high. And yet the peasants of Rumania, who supply the wealth for the politicians, are contented and apparently wealthier than the Slav peasants of either Bulgaria or Servia.

THE MOST PROSPEROUS STATE IN THE BALKANS

Rumania is distinctly a more productive and richer country than her neighbors across the Danube. Prosperity is evident everywhere in Rumania, while poverty is not hard to find in Servia, Bulgaria, or Montenegro.

The Jews are probably the most unhappy people in Rumania. The Jews live especially in the province of Moldavia. Great numbers of them have taken refuge there from persecution in neighboring Russian provinces.

Though they are free, with rare exceptions, from excessive outbreaks such as have taken place in Russia, they enjoy no political rights in Rumania, nor are they, or any other alien, permitted to purchase or own land outside the cities (see page 1072).

In many respects Rumania, though a more up-to-date country, is not so liberal as Bulgaria. There are not so many Jews in Bulgaria, and perhaps if their presence was equally marked the Bul-

Photo by Frederick Moore

THE PALACE AT SINAIA

Sinaia is a delightful little village scattered through the pine woods of the Carpathian Mountains. It is the favorite summer resort of the Rumanian aristocracy, and contains the palace or castle of Pelesh, the king's country residence. In addition to its sylvan charms, its mineral springs and baths and the famous Cantacuzene monastery are added attractions.

garians might likewise treat them as aliens. Nevertheless, the Bulgarians have shown themselves more liberal also toward other people and in other ways.

For instance, though the Rumanians are distinctly not church-goers, they will permit no missionaries from other countries to teach Protestant Christianity there. On the other hand, the Bulgarians are devoutly Orthodox (likewise of the Greek Church), and yet to American missionaries and teachers they owe, to a large extent, the knowledge of English which can be found scattered throughout their country.

AMERICAN INFLUENCE IN THE BALKANS

It is said throughout the Balkans that Robert College, on the shores of the Bosporus, is largely responsible for the ideas of independence for which the Bulgarians have shown themselves willing to fight as neither Europe nor the Turks expected them to do. The Bulgarians have been the most willing of the Balkan peoples to accept from the teachers of Robert College the best of American ideals. The Turks have not extensively availed themselves of the opportunity this institution offers, and the Greeks have in greater numbers preferred to learn the lessons which come to those who are traders and shoeblacks in American cities.

While the Rumanians cannot be called liberal in their laws concerning aliens, they cannot be accused of being unpatriotic. Even their politicians have shown themselves generally to be made of the stuff of true patriots.

In recent years, when the Standard Oil Company sought to get control of the rich Rumanian petroleum fields, the government showed themselves alert in the

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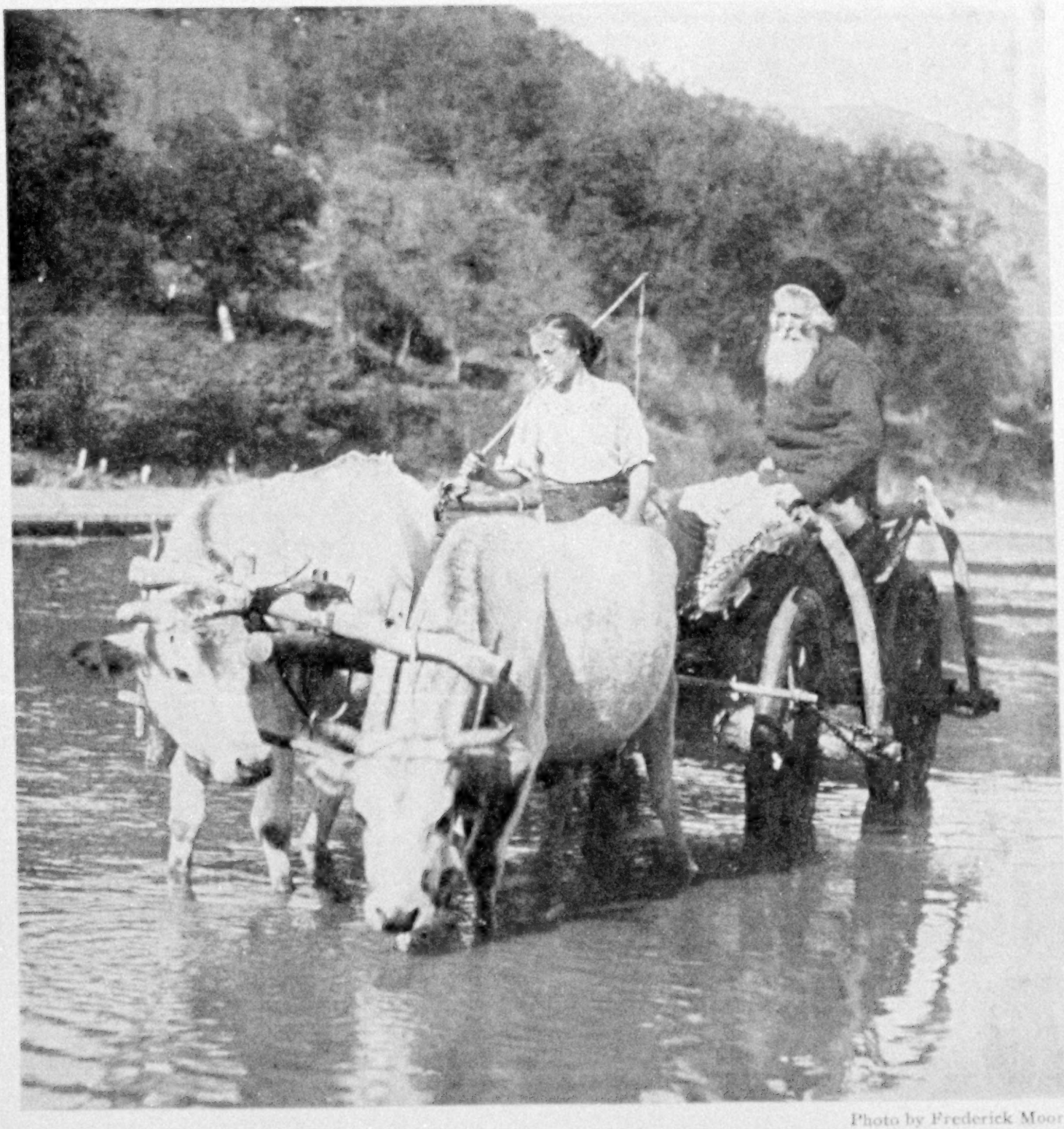

Photo by Frederick Moore

CROSSING THE FORD

An old Rumanian country priest and his daughter on the way home from market. As in other branches of the Orthodox Church, the parochial clergy of Rumania are all married. The higher clergy, however, including the bishops, are chosen from the monks.

interests of the country. Only after such safeguards had been placed round the American company that they could not cease to work the wells and thereby stifle Rumanian enterprise was the Standard Oil Company permitted to purchase oil lands. In a few years Rumania has profited largely by an expenditure of American capital.

A few facts about Rumania in general, apart from its political problems, still remain to be given.

WHAT THE KINGDOM IS LIKE

The country is shaped like a boot; indeed, the recent acquisition of the province of Silistria has added considerably to this resemblance, for while a distinct heel was formerly lacking, the addition of the new territory makes the likeness

almost perfect. Moldavia, stretching north between Hungary and Russia, forms the leg, a little narrow indeed, but still a leg, while the Transylvanian Alps on the northwestern border, where Wallachia adjoins Hungary, form the instep and continue down to the Iron Gates of the Danube at the toe. The great river, from this point eastward, forms the sole, and the two provinces of Dobrudja and Silistria make a well defined heel.

Speaking generally, Rumania is a great plain sloping upward from the Black Sea in a northwesterly direction, gradually attaining greater and greater elevations until it merges into the mountains of the border. It is the rich, black soil of this plain which has given to Rumania its rank among the great grain-growing countries of the world. Wheat, barley, oats, and maize are grown in great quantities and form the country's chief exports.

In the foothills of the mountains are mile after mile of vineyards, producing excellent wine, most of which, however, is consumed in the country, although this little kingdom ranks fifth among the European wine producers.

Higher up in the mountains are forests, aggregating in all over 7 millon acres, now conservated with the greatest care, for the king is an enthusiastic forester, and the timber exported from them produces no small revenue. Oak, beech, walnut, maple, and pine are the chief woods grown.

The petroleum beds are a great national asset, particularly as the Rumanians claim that their product has a higher percentage of the pure oil than is found in the American or Russian wells. The petroleum industry is carried on by private companies as well as by the state, and the Standard Oil Company, as I have mentioned, is also interested. This industry has now been developed to such an extent that Rumania stands fifth on the list of the petroleum producing countries of the world. There are extensive coal fields, both of anthracite and lignite, the largest anthracite fields being worked by an English company, which is also interested in railway development.

The great plains afford admirable pasture land, where great quantities of sheep, cattle, and swine are raised, enabling the Rumanian farmers to enter successfully the meat markets of Germany, Austria, and Belgium.

Vegetables are grown to such an extent that they form the fourth most important item among Rumania's exports.

The fisheries in the Black Sea and the Danube are of great value, particularly the sturgeon catch, from which much caviar is dispatched to Berlin, which is the center of the caviar-distributing industry. The choicer and most delicate fishes are exported to Austria and Hungary in such quantities that Rumania is compelled to import coarse fish from Russia to satisfy her own domestic demand.

WHERE THE UNITED STATES MAKES NO FIGURE

Rumania's greatest export trade is with Belgium and Hungary, while she obtains the greater part of her imports from Germany, Austria-Hungary ranking second, with Great Britain third; and it is distressing to observe that the United States is hardly represented at all.

The kingdom is a constitutional monarchy having a parliament of two houses. The Senate consists of 120 members, elected for eight years, including, *ex officio*, the Crown Prince, the bishops, and representatives of the universities. The Chamber of Deputies has 183 members, who are elected for four years. The voters are divided into three colleges based upon property qualifications, the first two of which vote directly, while in the third those who can read and write and have an income of $60 from rural land also vote directly; the rest vote indirectly, each 50 indirect electors choosing a delegate who votes with the direct electors of the third college.

The total population of the country is, roughly, a little over 7 millions. Included in this figure are the Jews, who, though not Rumanian citizens, form about 4½ per cent of the total population, a larger ratio than in any other country in the world.

Photo by Frederick Moore

A RUMANIAN PEASANT BEAUTY

The country is noted for pretty girls, and there can be few who are prettier than this country maiden in her picturesque national costume of white with its embroidery of red and the bright blue head dress and green apron. The quaint wooden pails are of white wood with burnt-in decorations.

The great majority of the inhabitants belong to the (Greek) Orthodox Church, the number of Catholics and Protestants being negligible. There is a small Mohammedan population, and the Armenian National Church is also represented.

A HIGH PERCENTAGE OF ILLITERATES

Education is free and compulsory "wherever there are schools," and though great strides are being made in this respect, the number of illiterates is still high, as it is estimated that about 50 per cent of the inhabitants can neither read nor write. There are two well-equipped universities—one at Bucharest, which has an attendance of more than 3,000 students, and a smaller one at Jassy, with about 500 students. The state is doing its best to raise the educational standard of the country by providing, among other measures, a number of special schools, among them being 8 normal schools, 12 commercial schools, 17 agricultural schools, and 6 schools of domestic economy for girls, in addition to which there are nearly 50 professional schools for boys, some of them state institutions and some private.

Military service is compulsory and universal. Under normal circumstances the young men from 19 to 21 receive a certain amount of primary training before they are called to the colors. At 21 they enter the regular army, serving for two years in the infantry and three years in the other branches of the service, after which they spend four or five years in the first reserve, being then transferred to the second reserve, and after that to the territorial corps; so that a man's average service in the army and reserves covers a period of some 21 years.

The means of communication in Rumania are excellent, there being nearly 2,000,000 miles of well-constructed national roads, and the railroads, which are all operated by the state, yield a handsome profit. In all, they amount to about 2,500 miles, of which more than 2,000 are state owned. In addition to the working of all the lines, the state has the direction of the commercial navigation service on the Danube and on the Black Sea.

Included in the population of the kingdom are many races not of Rumanian blood; for instance, in Moldavia there are thousands of Magyar descent, while in Dobrudja and Silistria the foreign element is strong—Turk, Tartar, Bulgar, Russian, and German being represented.

A CAUSE OF PERMANENT UNHAPPINESS

As is the case among the patriots of many European states, there is a permanent unhappiness in Rumania because of the fact that all Rumanians are not united under one flag. Not only is there a grievance against Russia because of Bessarabia, Hungary is also unloved on account of the many thousands of Rumanians living in Transylvania. In the latter province the Rumanians cling not only to their peculiar dress and language, never having been absorbed, but also distinguish themselves and their Orthodox faith by marking their houses with a Greek cross.

The Rumanians are a better-looking race than any of their neighbors. They are taller than the stocky Bulgar and have less stolid faces. There is often great beauty among the peasant women, and their costumes are the most brilliant in southeastern Europe. The Rumanians are of a southern European appearance, while their neighbors, with the exception of the Serbs, bear traces of their Oriental blood.

It is natural for them, like other races, to indulge in dreams of a day when a great Rumania can be formed. Yet the fulfillment of their ambition seems remote beyond possibility. These quasi-Latin people are not of a nature to make friends with their unlike neighbors, Slavs and Magyars, by whom they are entirely surrounded, but they must needs associate themselves politically for protection with the least aggressive of the two rival powers on their frontier.

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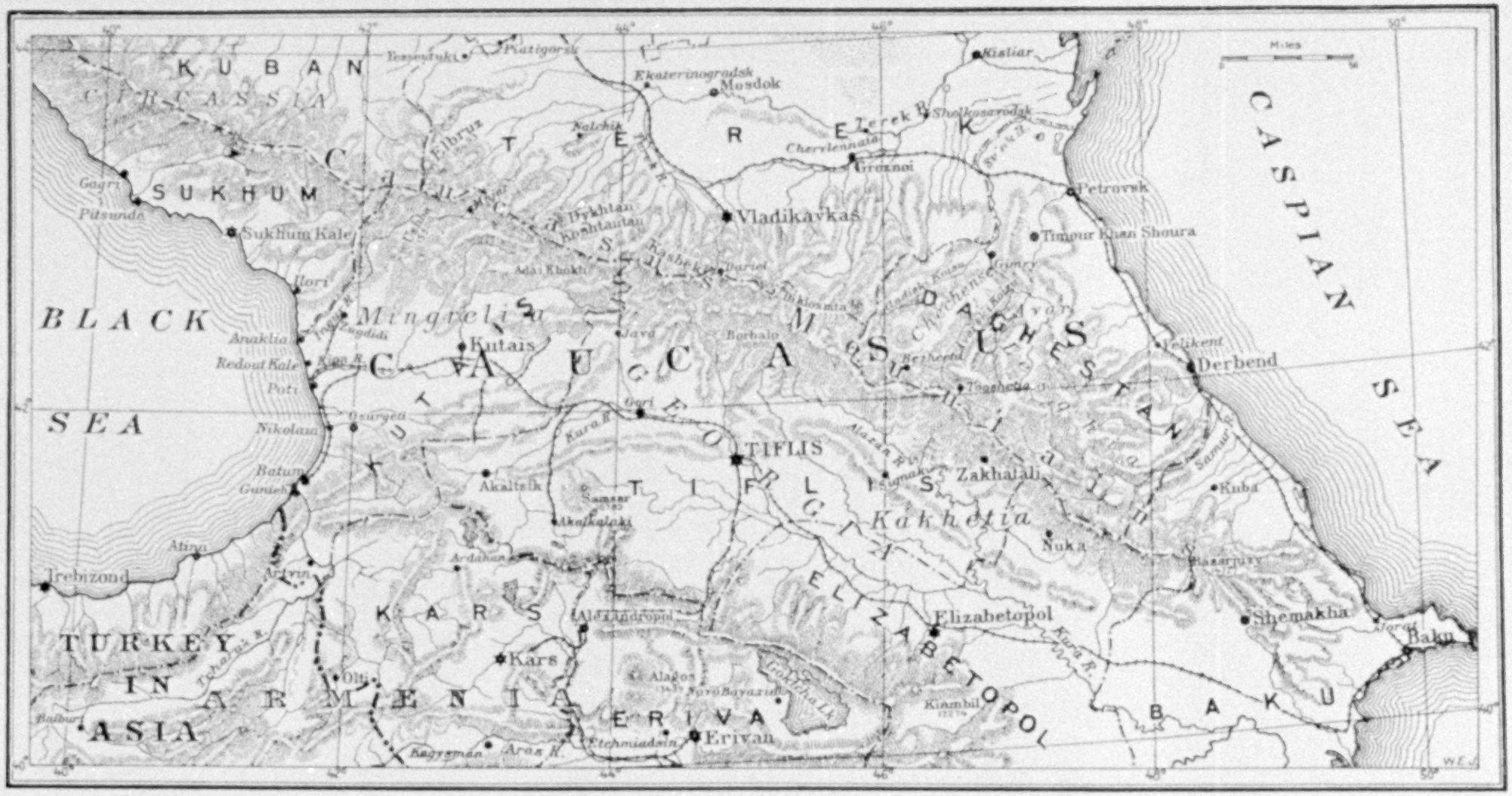

MAP OF THE CAUCASUS, SHOWING THE HIGHLANDS OF DAGHESTAN

This isthmus, between the Caspian and the Black seas—a territory of 180,603 square miles—is under the jurisdiction of a governor-general. He rules, in the name of the Czar, over three provinces, or governments, north of the mountains (Caucasia) and over eleven south of them (Trans-Caucasia), inhabited by 11,735,100 people, of whom 87 per cent are illiterate. The population is extraordinarily mixed; no less than 46 distinct nationalities are recognized. Some of these peoples are nomadic stock-breeders, while others, the settled inhabitants, are in great part devoted to agriculture. There are only two large cities, Tiflis and Baku, both of which have about 200,000 inhabitants, but there are eight or nine other towns reaching the 50,000 mark. Taken as a whole, the Caucasus is distinctly prosperous; the exports from its Black Sea ports amount to some $50,000,000 annually, and show a tendency to increase each year. Petroleum is the most valuable product exported, followed by silk, wheat and other cereals, manganese ore, and timber. The imports do not amount to anything like the same value, reaching a total of only about $10,000,000, machinery being the most valuable item.

AN ISLAND IN THE SEA OF HISTORY

The Highlands of Daghestan

By George Kennan

IN THE southeastern corner of European Russia, between the Black Sea and the Caspian, in about the latitude of New York city, there rises abruptly from the dead level of the Tatar steppes a huge, broken wall of snowy, alpine mountains, which has been known to the world for more than 2,000 years as the great range of the Caucasus.

It is in some respects one of the most remarkable mountain masses in existence. Its peaks outrank those of Switzerland, both in height and in rugged grandeur of outline; its glaciers, ice-falls, and avalanches are all upon the most gigantic scale; the diversity of its climates is only paralleled by the diversity of the races that inhabit it; and its history, beginning with the Argonautic expedition and ending with the Russian conquest, is a more remarkable and eventful history than that of any other range on the globe.

Geographically, the Caucasus forms a part of the boundary line between southeastern Europe and western Asia; but it is not merely a geographical boundary, marked on the map with a red line and having no other existence. It is a huge natural barrier, 700 miles in length and 10,000 feet in average height, across which, in the course of unnumbered centuries, man has not been able to find more than two practicable passes—the Gorge of Dariel and the Iron Gate of Derbend.

Beginning at the Strait of Kertch, opposite the Crimea, on the Black Sea, the range trends in a southeasterly direction across the whole Caucasian Isthmus, terminating on the coast of the Caspian near the half-Russian, half-Persian city of Baku. Its entire length, measured along the crest of the central ridge, does not much exceed 700 miles; but for that distance it is literally one unbroken wall of rock, never falling below 8,000 feet and rising in places to heights of 16,000 and 18,000 feet, crowned with glaciers and eternal snow (see page 1135).

No other region that I have ever seen presents, in an equally limited area, such diversities of climate, scenery, and vegetation. On the northern side of the range lie the treeless wandering grounds of the Nogai Tatars—illimitable steppes, where for hundreds of miles the weary eye sees in summer only a parched waste of dry steppe grass, and in winter an ocean of snow, dotted here and there with the herds and the black tents of nomadic Mongols.

CHANGING FROM WINTER TO SUMMER WITHIN A MILE

But cross the great range from north to south and the whole face of Nature is changed. From a boundless steppe you come suddenly into a series of shallow, fertile valleys, blossoming with flowers, green with vine-tangled forests, sunny and warm as the south of France.

Sheltered by a rampart of mountains from the cold northern winds, vegetation here assumes an almost tropical luxuriance. Prunes, figs, olives, oranges, and pomegranates grow, almost without cultivation, in the open air; the magnificent forests of elm, oak, maple, Colchian poplar, and walnut are festooned with blossoming vines, and in autumn the sunny hillsides of Georgia, Kakhetia, and Mingrelia are fairly purple with vineyards of ripening grapes.

But climate here is only a question of altitude. Out of these semi-tropical valleys you may climb in a few hours to the highest limit of vegetable life and eat your supper, if you feel so disposed, on the slow-moving ice of a glacier.

High up among the peaks of this great Caucasian range lives, and has lived for centuries, one of the most interesting and remarkable peoples of modern times—a people that is interesting and remarkable not only on account of the indomitable bravery with which it defended its mountain home for 2,000 years against all

Photo from George Kennan

THE LOOKOUT ON THE HEIGHTS

"Upheavals, fractures, volcanic activity, and torrential floods had apparently tilted, faulted, disrupted, broken, and eroded the geological strata of Daghestan until not a single square mile of level and undisturbed ground was left" (see page 1111)

XUM

Photo from George Kennan

CHARACTERISTIC DAGHESTAN SCENERY

"The most vivid and faithful description could hardly do justice to the savage wildness of the scenery that was presented to us. . . . Even from the highest ridges and watersheds that we crossed nothing could be seen but a chaos of treeless mountains, high, isolated mesas, gigantic precipices, and deep, gloomy ravines, through which boiled and roared the rock-tormented waters of a hundred snow-born streams" (see text, page 1111).

comers, but on account of its originality, its peculiar social and political organization, and its innate intellectual capacity. I call it a people rather than a race, because it comprises representatives of many races and yet belongs as a whole to none of them. It is a heterogeneous aggregation of human odds and ends from all parts of the Old World.

AN ISLAND IN THE SEA OF HISTORY

The Caucasian range may be regarded for all ethnological purposes as a great mountainous island in the sea of human history, and on that island now live together the surviving Robinson Crusoes of a score of ship-wrecked states and nationalities—the fugitive mutineers of a hundred tribal *Bounties*.

Army after army has gone to pieces in the course of the last 4,000 years upon that titanic reef; people after people has been driven up into its wild ravines by successive waves of migration from the south and east; band after band of deserters, fugitives, and mutineers has sought shelter there from the storms, perils, and hardships of war. Almost every nation in Europe, in whole or in part, and at one time or another, has crossed, passed by, or dwelt near this great Caucasian range, and each in turn has contributed its quota to the heterogeneous population of the mountain valleys.

The Aryan tribes, as they migrated westward from central Asia, left a few stragglers among the peaks of this great range; their number was increased by deserters from the Greek and Roman armies of Alexander the Great and Pompey; the Mongols under Tamerlane, as they marched through Daghestan, added a few more. So, too, the Arabs, who overran the country in the eighth century, established military colonies in the mountains, which gradually blended with the pre-existing population. European Crusaders, wandering back from the Holy Land, stopped there to rest and never resumed their homeward journey. Finally, the oppressed and persecuted of all neighboring lands—Jews, Georgians, Persians, Armenians, and Tatars—fled to these rugged, almost inaccessible mountains as to a city of refuge where they might live and worship their gods in peace.

HOW THE MOUNTAINS MADE A NATION

In course of time these innumerable fragments of perhaps a hundred different communities or tribes, united only by the bonds of a common interest, were molded by topographical environment into a single conglomerate nationality, and became known to their lowland neighbors as *gortse*, or mountaineers. From a mere assemblage of stragglers, fugitives, and colonists they developed in the course of a thousand years into a brave, hardy, self-reliant people, and as early as the eighth century they had established in the mountain fastnesses of Daghestan, at the eastern end of the range, a large number of so-called "free societies," which were governed by elective franchise, without distinction of birth or rank. After that time, for another thousand years, they were never conquered.

Both the Turks and the Persians at different periods held the nominal sovereignty of the country, but so far as the mountaineers were concerned it was only nominal. Army after army was sent against them, only to return broken and defeated, until at last among the Persians it passed into a proverb: "If the Shah becomes too proud, just let him make war with the highlanders of Daghestan."

In 1801 these hitherto unconquered mountaineers came into conflict with the titanic power of Russia, and after a long and desperate struggle of nearly sixty years they were finally subdued and the Caucasus became a part of the Russian Empire.

At the present time the mountaineers as a class, from the Circassians of the Black Sea coast to the Lesghians of the Caspian, may be roughly described as a brave, hardy, liberty-loving people, who have descended from ancestors of widely different ethnological types and who are separable into tribes, or clans, of very different outward appearance; but who, nevertheless, are surprisingly alike in all

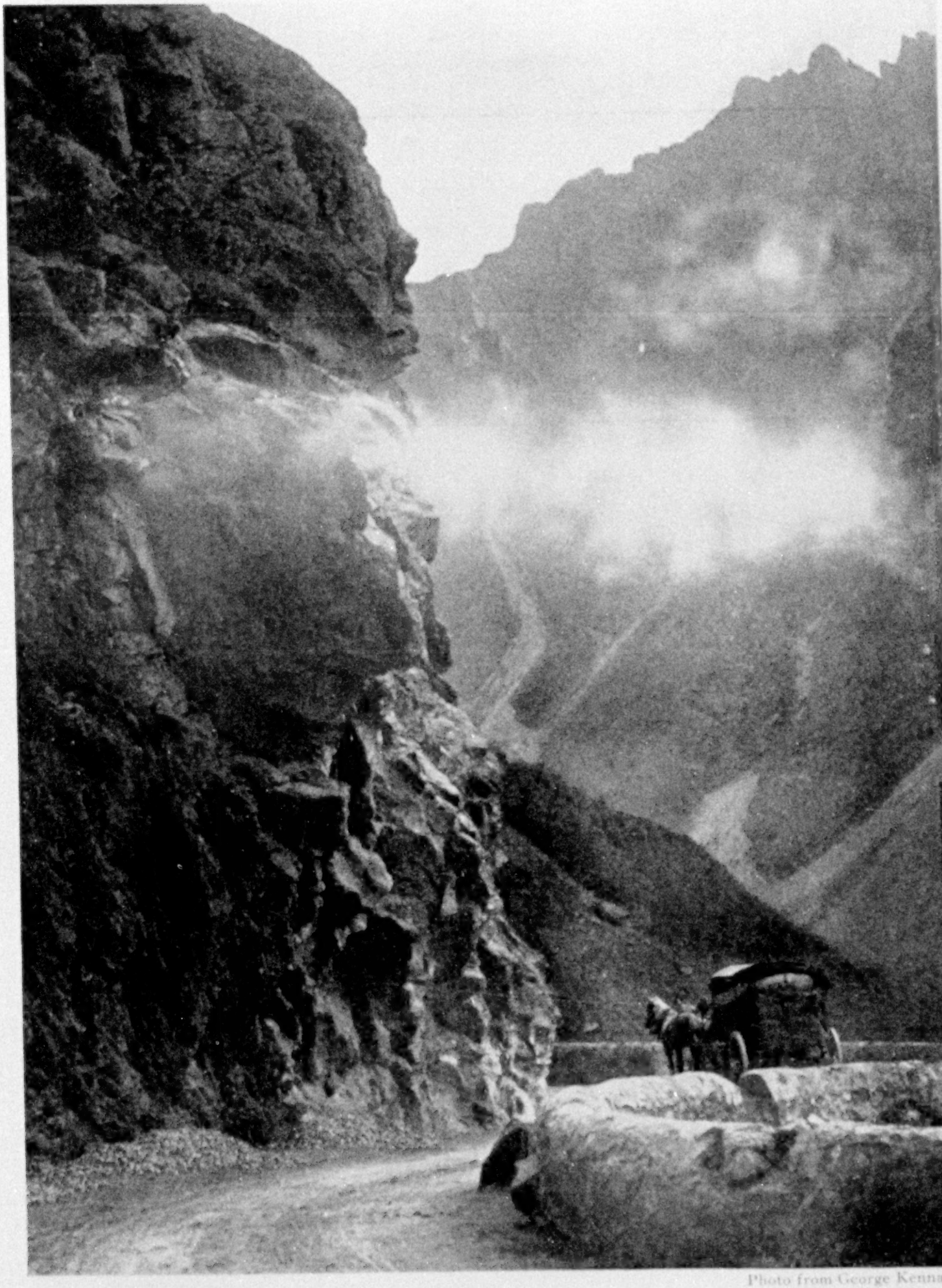

Photo from George Kennan

ON THE GEORGIA MILITARY ROAD

The pass of Dariel contains the Georgia military road, running from Vladikavkaz to Tiflis. The pass, shut in by lofty mountain walls sometimes 6,000 feet high, is of singular beauty and often so narrow that there is just room for the road and the turbulent River Terek, which runs alongside. Today a regular automobile service from Vladikavkaz to Tiflis is maintained through the pass.

Photo from George Kennan

THE MONASTERY OF ANANUR

This monastery, built in the 5th century, stands in one of the wider parts of the pass of Dariel. Some idea of the wildness of the people of this region—both then and now—can be gained from a glance at this edifice, which has rather the character of a fortress than an abode of peace and religion.

Photo from George Kennan

THE DESCENDANTS OF THE CRUSADERS

The Khevsurs of Tooshetia are among the few Christian tribes of the Caucasus and are said to be the descendants of the Crusaders. In the more remote sections of the mountains they have preserved the coats-of-mail of their ancestors, which they wear on certain ceremonial occasions.

psychological traits that grow out of and depend upon topographical environment.

They number perhaps a million and a half and are settled in small, isolated stone villages throughout the whole extent of the range from the Black Sea to the Caspian, at heights ranging from 3,000 to 9,000 feet. They maintain themselves chiefly by pasturing sheep upon the mountains and cultivating a little wheat, millet, and Indian corn in the valleys, and before the Russian conquest they were in the habit of eking out this scanty subsistence by making plundering raids into the rich neighboring lowlands of Kakhetia and Georgia.

ONE RELIGION, BUT MANY TONGUES

In religion they are nearly all Mohammedans, the Arabs having overrun the country and introduced the faith of Islam as early as the eighth century. In the more remote and inaccessible parts of the eastern Caucasus, there still remain a few isolated *aouls* (villages) of idolaters.

In Daghestan there are four or five thousand Jews, who, although they have lost their language and their national character, still cling to their religion; and among the high peaks of Tooshetia, in the same province, is settled a community of Christians, said to be the descendants of a band of medieval Crusaders. But these are exceptions; nine-tenths of the mountaineers are Mohammedans of the fiercest, most intolerant type.

The languages and dialects spoken by the different tribes of this heterogeneous population are more than thirty in num-

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Photo from George Kennan

THE TOWERS AT PANSHETI

Along the Georgia military road, through the pass of Dariel, are isolated villages, each with its watch-towers like those shown in the picture. In former times constant watch was kept from these towers for the enemy who might at any moment come down the pass.

ber, and two-thirds of them are to be found in the province of Daghestan, at the eastern end of the range, where the ethnological diversity of the population is most marked. So circumscribed and clearly defined are the geographical limits of many Caucasian languages that in some parts of Daghestan it is possible to ride through three or four widely different linguistic areas in a single day.

Languages spoken by only 12 or 15 settlements are comparatively common; and on the headwaters of the Andiski Koisu, in southwestern Daghestan, there is an isolated village of 50 or 60 houses—the *aoul* of Innookh—which has a language of its own, not spoken or understood by any other part of the whole Caucasian population.

Prior to the Russian conquest none of these mountain languages had ever been written, but the early introduction of Arabic supplied to a great extent this deficiency. Almost every settlement had its mullah, or kadi, whose religious or judicial duties made it necessary for him to read and write the language of the Koran, and when called upon to do so he acted for his fellow-villagers in the capacity of amanuensis or scribe.

After the conquest the eminent Russian philologist, General Usler, invented alphabets and compiled grammars for six or eight of the principal Caucasian languages, and these are now taught in the government schools established under the auspices of the mountain administration at Vladikavkaz, Timour Khan Shoura, and Groznoi.

THE POLICEMAN SUPPLANTS THE PATRIARCH

In government the Caucasian highlanders before the Russian conquest acknowledged no general head, each separate tribe or community having developed for itself such system of polity as was most in accordance with the needs

and temperament of its component members. These systems were of almost all conceivable kinds, from the absolute hereditary monarchies of the Arab khans to the free communities or simple republics of central and southern Daghestan. In the former the ruler could take the life of a subject with impunity to gratify a mere caprice, while in the latter a citizen who regarded himself as aggrieved by a decision of the ruler could appeal to the general assembly, which had power to annul the decree or even to change the chief magistrate.

Since the Russian conquest the mountaineers have altered to some extent both their forms of government and their mode of life. Blood revenge and plundering raids into the valley of Georgia have nearly ceased. Tribal rulers in most parts of the mountains have given place to Russian *ispravniks* (chiefs of police); and the rude and archaic systems of customary law, which prevailed everywhere before the Russian conquest, are being slowly supplanted by the less summary processes of European jurisprudence.

THE CUSTOMS OF A THOUSAND YEARS AGO STILL FLOURISHING

Of course, the life, customs, and social organizations of a people who originated in the way that I have described, and who lived for perhaps 2,000 years in almost complete isolation from all the rest of the world, presented when they first became known many strange and archaic features. In the secluded valleys and canyons of the eastern Caucasus it was possible to study a state of society that existed in England before the Norman conquest, and see in full operation customs and legal processes that had been obsolete everywhere else in Europe for at least a millennium.

I had the good fortune to see the country before the fierce and wild population of the mountain valleys had been much influenced by Russian civilization; and in the unvisited and almost inaccessible fastnesses of southern Daghestan I found still in existence the men, customs, and ideas of the tenth century.

My attention was first attracted to the Caucasus as a promising field for exploration in the spring of 1868, when I passed through Moscow and St. Petersburg on my way home from eastern Siberia. The Caucasian war had then recently closed; and all Russia was ringing with romantic stories of the Daghestan highlanders—the Lesghians, the Chechenses, and the Avars—whose chivalrous and heroic courage had won the respect and admiration even of their enemies.

Russian regimental bands were playing, on the banks of the Neva, the strange, wild music that they had learned on the coast of the Caspian; exquisitely wrought shirts of chain-mail (see page 1093) and gold and silver hilted weapons made by the *gortse*, or mountaineers, were exhibited in the shop windows of St. Petersburg, and even the ladies showed their interest in the men whom their husbands and brothers had been fighting by adopting a part of the latter's picturesque costume and brightening the sidewalks of the Nevski Prospekt with the scarlet and white hoods of Circassian horsemen. Everybody who had visited the Caucasus spoke of it to me with the greatest enthusiasm as "the Russian Switzerland."

So much was my imagination stimulated by the descriptions which I heard that I determined to devote my first spare time and money to as thorough an exploration of the eastern Caucasus as circumstances would permit me to make.

WHAT MIGHT HAVE HAPPENED TO JOHN HAY

The plunge into this wild region without a companion seemed to me inexpedient if not unsafe, and in 1870 I proposed the trip to John Hay, who was then doing editorial work on the New York *Tribune* and who, I thought, might be interested in my plan. To my great delight he received the proposition with enthusiasm and agreed to sail for Russia with me in June of that year.

We had already begun to make preparations for the journey when, in the early spring, Mr. Hay informed me that

Photo from George Kennan

IN THE PASS OF DARIEL

Commanding the narrowest point in the whole pass, stands the ruined castle of Queen Tamara, the great twelfth century queen of Georgia, which at one time could hold the pass against all comers. Even in this wild defile it is difficult to escape the march of progress. Note the telegraph wires beside the castle.

Photo from George Kennan

THE DARIEL PASS IN WINTER

To cross the Caucasus in winter, even by the most practicable of the passes, is an undertaking of no small difficulty. The traveler has often, literally, to dig his way through the snow, as can be seen from the picture.

he had entered into an engagement of marriage, and that in view of this fact he thought it would not be practicable for him to join me in the proposed exploration. From one point of view, it is perhaps unfortunate that Mr. Hay's engagement did not begin a year later.

If he had gone to the Caucasus he might have written a book even more striking and brilliant than "Castilian Days," and might still have had the happy married life and the distinguished public career that were then awaiting him. It is easy to imagine what a story he would have given to the world if it had been possible for him to get back into the Europe of Charlemagne, and that practically is what he might have done if he had explored the high and wild ravines of southern Daghestan in 1870.

After having made several unsuccessful attempts to find a traveling companion in place of Mr. Hay, I was eventually compelled to sail for Russia alone, and reached St. Petersburg about the first of July. In August I proceeded by rail to Nijni Novgorod, took a steamer down the River Volga to Astrakhan, circumnavigated the northern end of the Caspian Sea, and finally landed early in September at Petrovsk, a small port on

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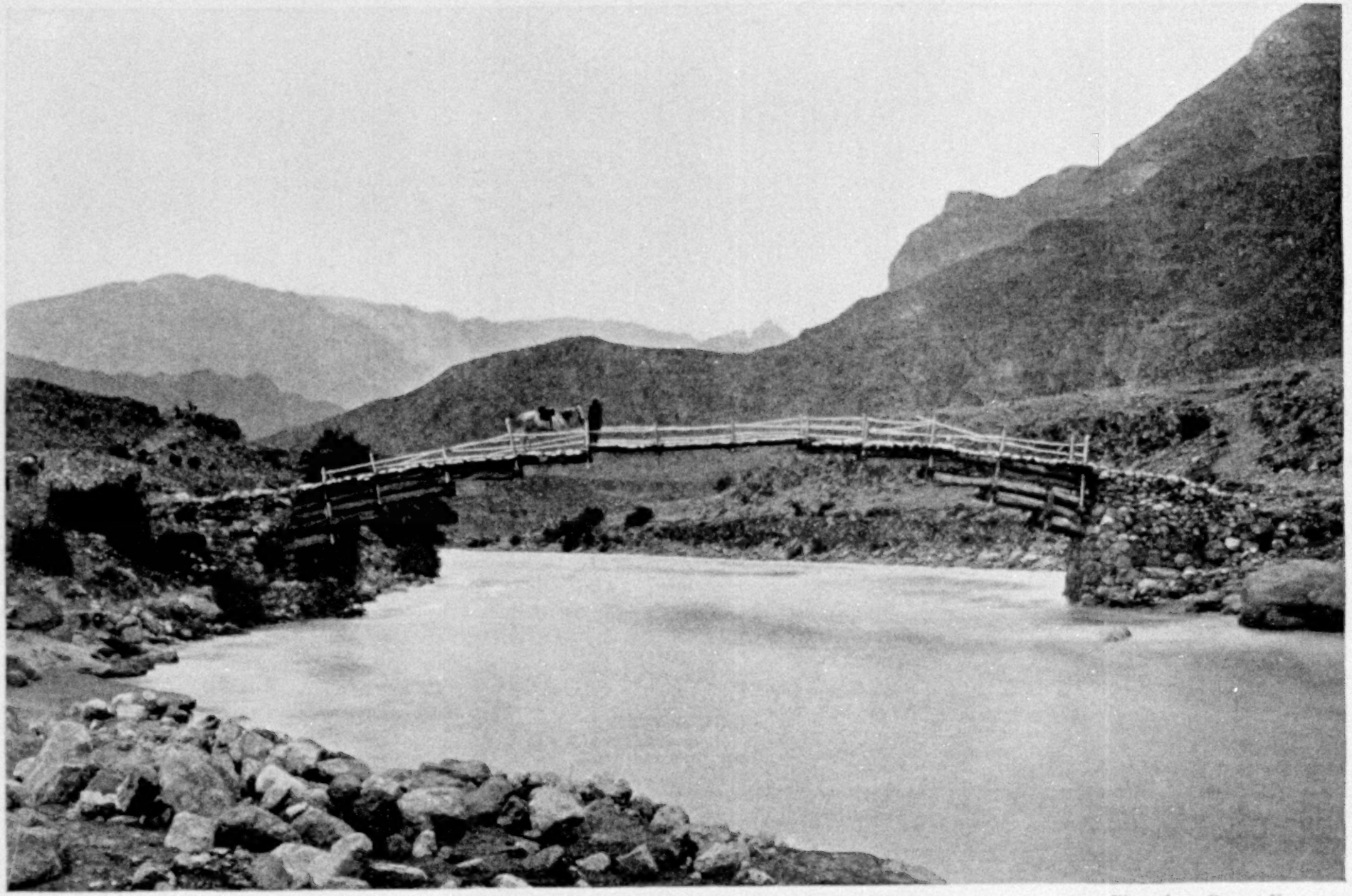


Photo from George Kennan

THE HEAD WATERS OF THE ANDISKI KOISU

Around the upper reaches of the Andiski Koisu is a veritable Babel, for the inhabitants of that region possess such a variety of language that the traveler finds a new one every few miles. Tongues used by only a dozen villages are common, while there is one mountain settlement which is the proud possessor of a language spoken nowhere else (see text, page 1094).

XUM

Photo from George Kennan

THE VILLAGE OF KAZBEK

This is one of the villages which are found from time to time by the traveler in the wider parts of the pass of Dariel

the northern side of the mountains in the east Caucasian province of Daghestan.

THE GATE OF THE CAUCASUS

The roads leading back into the interior from this point were only two in number. One ran westward up the valley of the Terek to the town of Vladikavkaz, and then crossed the great range, by the Dariel pass (see pp. 1091, 1096), to Tiflis, while the other took a more southerly course through the foothills to Timour Khan Shoura (the village of Tamerlane), where it ended in a great maze of treeless peaks, ravines, and precipices, traversed only by narrow and perilous bridle paths.

The first of these roads was the safer and easier one to follow, but the second offered greater inducements in the shape of novel and adventurous experience, and after a few hours' deliberation I ordered post horses and a *tarantas* (a Russian traveling carriage) and proceeded to Timour Khan Shoura.

As the distance from Petrovsk to the provincial capital was not great, I covered it in a single day, and put up that night in a small and extremely primitive hotel on the threshold of the wild region known to the Daghestan highlanders as "the land of mountains."

Early on the following morning I began to make inquiries with regard to the possibility of riding through Daghestan on horseback and crossing the great range into the valley of Kakhetia (see map, page 1086). Exploring the Caucasus had seemed to me easy enough while I sat in my library at home and traced out possible routes on the map with my pencil, but when I arrived on the ground the undertaking assumed a very different aspect.

Photo from George Kennan

THREE GEORGIAN BELLES

For centuries the women of Georgia have had a reputation for beauty equaled only by that of the Circassians. It may be that the standard of beauty is not high in the near East, for these three Georgians, even in their national costume, can hardly be described as ravishing.

THE HANDICAP OF A NEW LANGUAGE EVERY 15 MILES

The geography of the country, with its barbarous Turkish and Tatar names, was wholly unknown to me. The Russian language, upon which I had chiefly relied, proved to be almost useless in a region where the language changed every 10 or 15 miles. The bridle paths in southern Daghestan were represented to me as high "cornice" trails, difficult and dangerous at any time and absolutely impassable in bad weather; and the people of the remote mountain valleys were said

Photo from George Kennan

HUSBAND AND WIFE

This couple are from Bollikh, in western Daghestan. The costume of the man exhibits the features common throughout the Caucasus—the conical lamb's-wool cap, the long coat, the silver cartridge cases, and the elaborately decorated dagger and sword. The dress of the wife is more curious than beautiful and is by no means frequently seen.

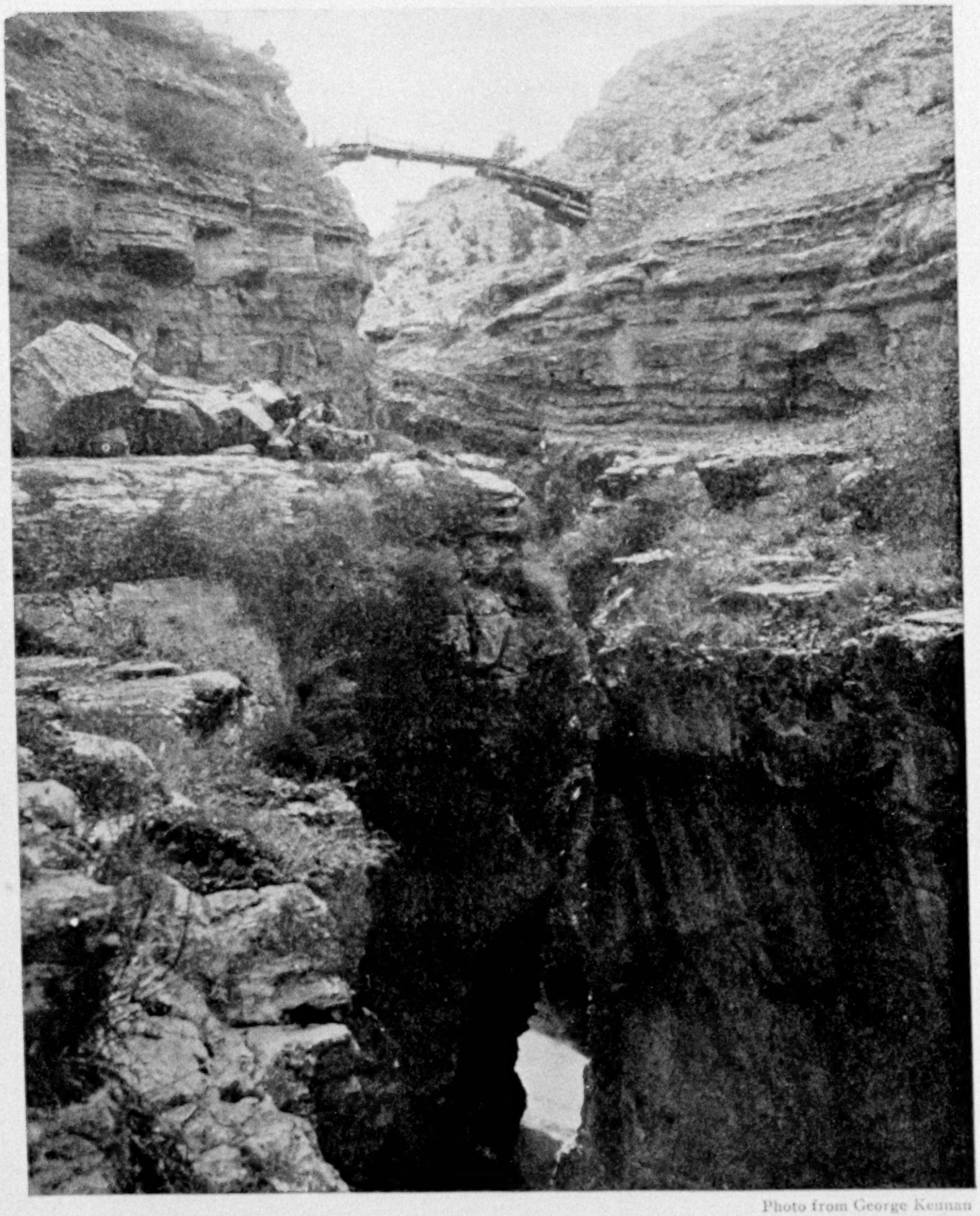


Photo from George Kennan

A RUDE BRIDGE IN THE MOUNTAINS

"Through these eroded galleries run mountain streams, which are generally rapid but narrow and which are spanned where the bridle paths cross them by rude log-and-plank bridges. . . . It is so difficult to throw them across the boiling torrents of Daghestan that in all the mountain communities the punishment for willful destruction of a bridge is death" (see text, page 1117).

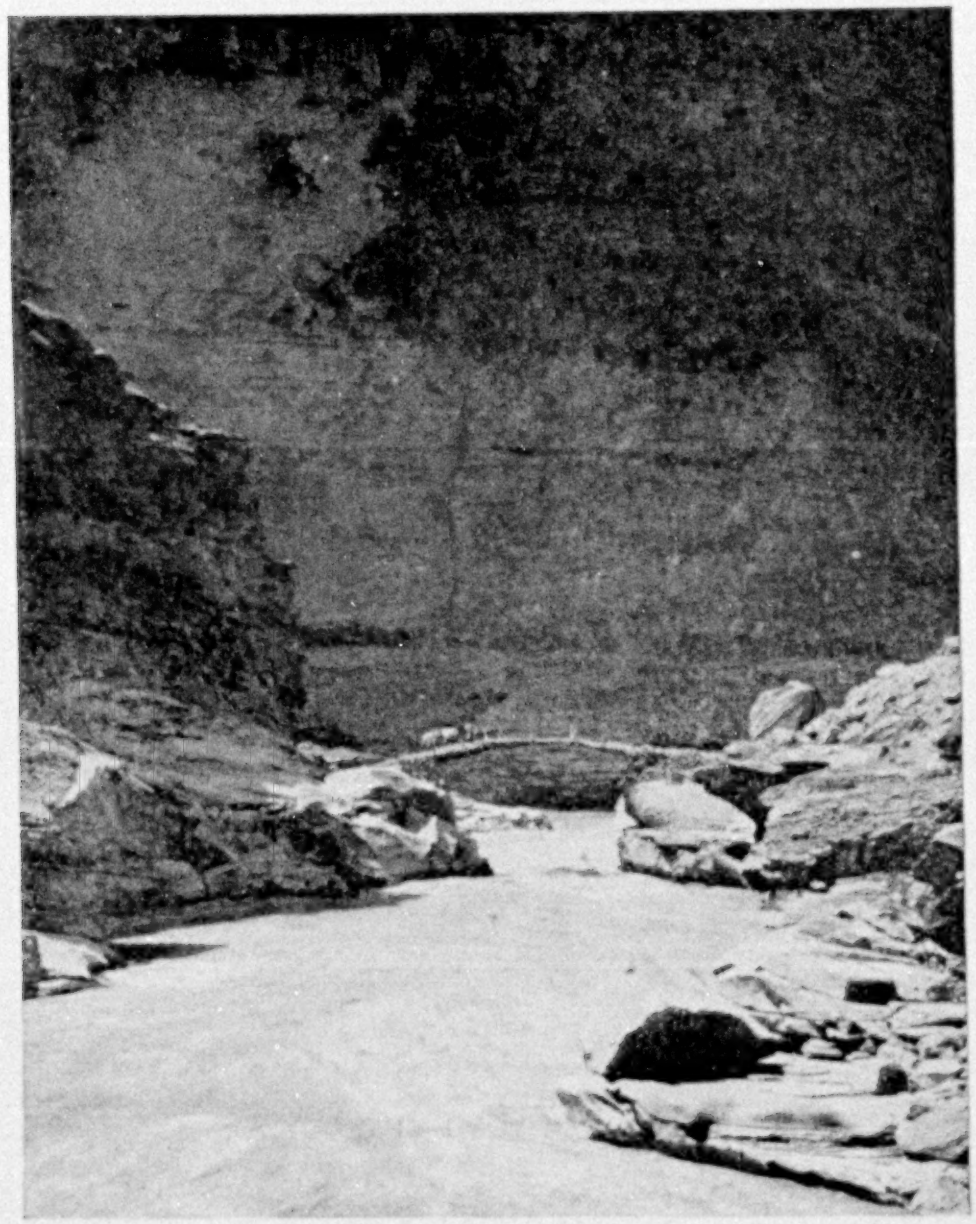


Photo from George Kennan

A BRIDGE-SPANNED TORRENT

"The ravines through which these bridge-spanned torrents flow make travel across the country extremely difficult. Getting out of one and into another involves four or five hours of climbing or sliding on steep zigzags, and a ride of 10 miles across two or three of them is a hard day's journey" (see text, page 1117).

to be so unfamiliar with west Europeans that it would be extremely hazardous to go among them without an armed escort.

Most of the Russians whose advice and assistance I asked assured me that my plan of crossing the great range and descending into the valley of Kakhetia was wholly impracticable. "We ourselves," they said, "would hesitate to undertake such a trip, and how can you—an American without knowledge or experience—expect to make it"?

All my efforts to get guides, horses, and interpreters were fruitless, and for a whole week I wandered around the bazaars and narrow, muddy streets of Timour Khan Shoura, waiting for something to turn up. Nothing, however, did turn up, and how to turn something up I did not know.

A GEORGIAN NOBLE

My patience and self-confidence were fast becoming exhausted when I accidentally heard one morning that a certain Prince Djordjadzi—a Georgian nobleman in the Russian service—had just arrived in Timour Khan Shoura and would leave there on the following day for his home in the trans-Caucasian valley of the Alazan. He had a full force of guides and interpreters and a large armed escort, and his intention was to ride through the wildest, least known part of the eastern

Photo from George Kennan

A TATAR WITH BUFFALO

Caucasus and cross the great range into Kakhetia at a height of 12,000 feet. Here apparently was the opportunity I had been longing for.

I called at once on Prince Djordjadzi, introduced myself as an American traveler, explained my plans, and requested permission to join his party. The prince, a fine-looking, gray-haired man, 55 or 60 years of age, began at first to make objections, on the ground that I had had no mountain experience and was unaccustomed to the fatigue and hardship that such a journey would involve. When, however, I had given him a hasty account of my explorations in Kamchatka and northeastern Siberia, he yielded, rather ungraciously, and said: "Get yourself some heavy riding boots, a horse-hair cloak (*burka*), and a pair of saddle-bags, and be prepared to leave here tomorrow afternoon at half past one."

I hurried back to my hotel, bought the necessary equipment, sold or gave away all of my clothing that could not be carried on horseback, and before night my preparations were complete. At 2 o'clock on the following afternoon Prince Djordjadzi sent one of his aides to my room to tell me that his party was ready to start.

PICTURESQUE TRAVELING COSTUMES

The scene presented by the courtyard of the governor's house when I reached there was, to American eyes, a most novel and striking one.

Prince Djordjadzi, in a muff-shaped hat of Persian lamb's-wool and a green silk *khalat* confined at the waist with a massive silver belt, stood on the veranda of the governor's house, talking with General Tergukasof and three or four other officers in the brilliant uniform of the Caucasian staff; 25 or 30 mountaineers, in long-skirted maroon coats adorned with rows of ivory cartridge tubes, high cylindrical hats of black curly wool, white stormhoods of felted camel's

hair, and tight scarlet leggings bound with golden braid, were already in the saddle, adjusting their silver-mounted rifles, pistols, sabers, and poniards, while they awaited the signal for a start; orderlies were running hither and thither in search of mislaid or forgotten equipment, and the air was filled with the shouting of men, the neighing of impatient horses, and the sharp clank of weapons.

In course of time order was brought out of the prevailing confusion, and at half past two we climbed into our high Tatar saddles and rode away, through the Avarski gate, into the highlands of Daghestan.

Our first day's journey, owing to the lateness of our start, was not a long one, and after a ride of two or three hours through narrow, wooded ravines we came out, just before sunset, into a shallow, open valley, and caught sight of the village where we were to spend our first night. It was the *aoul*, or mountain settlement, of Joongootai.

AN AWE-INSPIRING BUT HEARTY WELCOME

The inhabitants had evidently received notice of our coming, and while we were still a quarter of a mile distant a mounted sentinel, who had apparently been watching for our approach, chirruped to his horse and dashed away at a gallop for the village, firing his long silver-banded rifle into the air and brandishing it furiously above his head in order to attract the attention of his fellow-villagers. The signal was promptly obeyed.

In a moment a large party of mountaineers, richly dressed and glittering with silver-mounted weapons and cartridge tubes, came galloping out of the stone gate of the village, lashing their horses with the hinged whips pictured on the monuments of Assyria; shouting, whooping, and yelling in what seemed to be the fierce excitement of battle, and firing at us incessantly as they dashed furiously down upon our escort. It stirred one's pulses to see the splendid impetuosity of the attack; but not knowing what it all meant, I almost instinctively reined in my horse and felt for the butt of my revolver.

On came the charging horsemen, like the Light Brigade at Balaklava, with a tumult of whooping, yelling, and firing that swelled into a great battle crescendo as they drew near. The distance between us narrowed to 50 feet, 30 feet, 10 feet, until the living thunderbolt of men and horses seemed actually to strike us. Then suddenly up went the hand of the leader, back went the trained horses upon their haunches as the sabers of their riders flashed in the air, and the whole attacking force in mid-career halted, slid a yard or two, and stopped within 6 feet of Prince Djordjadzi's saddle-peak.

For an instant the horsemen, with uplifted sabers, faced us in a superb battle tableau; then, with a great cry of *Asalaam alaikoum!* (Peace be with you) they sheathed their weapons, dismounted from their high Tatar saddles, and advanced on foot to greet Prince Djordjadzi with the clasping fingers and upraised thumbs of Caucasian custom, but without the shaking of hands that is practiced in the West. I have witnessed impressive ceremonial receptions in many lands, but nothing to equal in dramatic effect the Caucasian *jigatofka*—the sham attack of a party of fighting highlanders upon a guest whom they wish to honor.

THE HIGHLANDERS AT CLOSE RANGE

In 10 minutes more we were comfortably seated on a rug-covered divan in the house of a mountaineer named Aleskandir Bek, Prince Djordjadzi receiving calls from his friends and acquaintances, while I drank cup after cup of fragrant Russian tea and watched the callers. They were all Lesghians of the clan known as Avars, and in stature, features, and coloring they differed little from men of the Teutonic and Anglo-Saxon stock.

All had the hawk-like intensity of gaze that is characteristic of mountaineers generally, as compared with lowlanders, but in other respects they were west Europeans; and in the dress of Great Britain or Germany they would undoubtedly have been taken for Englishmen, Scotchmen, Bavarians, or Saxons. They would have impressed me, however, in any dress and in any part of the world as outdoor men of strong character and fighting capacity.

XUM

Photo from George Kennan

THE TATESKI MONASTERY: KAKHETIA VALLEY

The isolated valleys of the Caucasus form ideal spots for those who wish to withdraw from the world, and consequently monasteries are not infrequent. It must be noted, however, that most of them have been fortified as a protection against the proselytizing zeal of Moslem neighbors.

In a few moments Aleskandir Bek took a seat by my side, remarked in broken Russian that he had never before seen a foreigner in Daghestan, and asked if he might be permitted to inquire my business. I told him frankly that I was a vagabond American, traveling for the love of it, seeing strange sights and mingling with strange people, in order that I might describe both some day in a book. He laughed pleasantly and said that in Joongootai, at least, I should have something to write about, because he had arranged for that evening, in honor of Prince Djordjadzi, a little Caucasian dancing party, which would give me some idea, perhaps, of Daghestan amusements and social life.

A CAUCASIAN NIGHT'S ENTERTAINMENT

In the course of an hour, before we had finished our last cup of tea, the piercing notes of a Daghestan fife, mingled with the muttering of kettle-drums and tambourines, could be heard in the courtyard, and we all went out on the broad veranda to see the beginning of a Caucasian night's entertainment. The yard was ablaze with torches and iron cressets filled with flaming firebrands, and was crowded with tall, bearded Lesghians, whose silver-mounted pistols, daggers, and cartridge tubes flashed fitfully in the red torchlight as they moved from place to place.

Near the veranda, in a little group, stood the women, richly dressed in filmy laces and bright-colored Persian silks, with long white veils concealing their hair and hanging down their backs to their red-slippered heels. Overhead was the slender stone minaret of the village mosque, outlined clearly against the dark starry sky, and from its high, circular gallery two white-turbaned *mullahs*, or Mohammedan priests, looked down curiously into the crowded, torch-lighted courtyard.

In a few moments our host cleared an open space in the center of the yard, shouted to the musicians to strike up, and the dancing began. One of the mountaineers stepped into the ring, laid his right hand, palm outward, against his right cheek, extended his left arm at full length, bent down his head, and began to dance rapidly around in a narrow circle, keeping step to the throbbing of the kettle-drums and the measured, rhythmical hand-clapping of a hundred spectators.

In a moment he was joined by a bright-eyed, graceful young woman, who floated out to meet him from the little group near the veranda, and from whose outstretched arms hung long, flowing sleeves of pea-green silk to a depth of at least a yard. As she sailed out on tip-toe, with expanded silken wings and downcast, blushing face, she looked—in the estimation of Prince Djordjadzi—"like a terrestrial angel just about to take flight!"

DANCING TO THE MUSIC OF PISTOLS

With the appearance of the woman began the exciting part of the dance. The clapping of hands and the roll of the deep-toned kettle-drums almost drowned the shriek of the tormented fife, and now and then both were lost in a crashing fusillade of pistol shots fired into the air by the sympathetic spectators for the purpose of enlivening the proceedings by increasing the noise and enthusiasm. In two or three minutes the young woman glided out of the ring and rejoined her companions; her partner touched his hat and also retired, and a second couple took their places, the clapping of hands and pistol firing going on as before (see page 1131).

Dancing, interspersed with peculiar native games and musical improvisations, which were full of humorous personal hits and excited shouts of laughter, continued until a late hour of the night, when an elaborate Asiatic supper was served on the earthen, rug-covered floor of the stone-walled house. Finally, at 2 o'clock in the morning, we went to bed on the broad divan and fell asleep listening to a serenade sung by the women of the village under our windows with the monotonous refrain of "Hài! Hài! An-nan-nàn-nan-nài! An-nan-nài!" (the Caucasian equivalent of "Là! Là! La-la-là-la-là! La-la-là!").

XUM

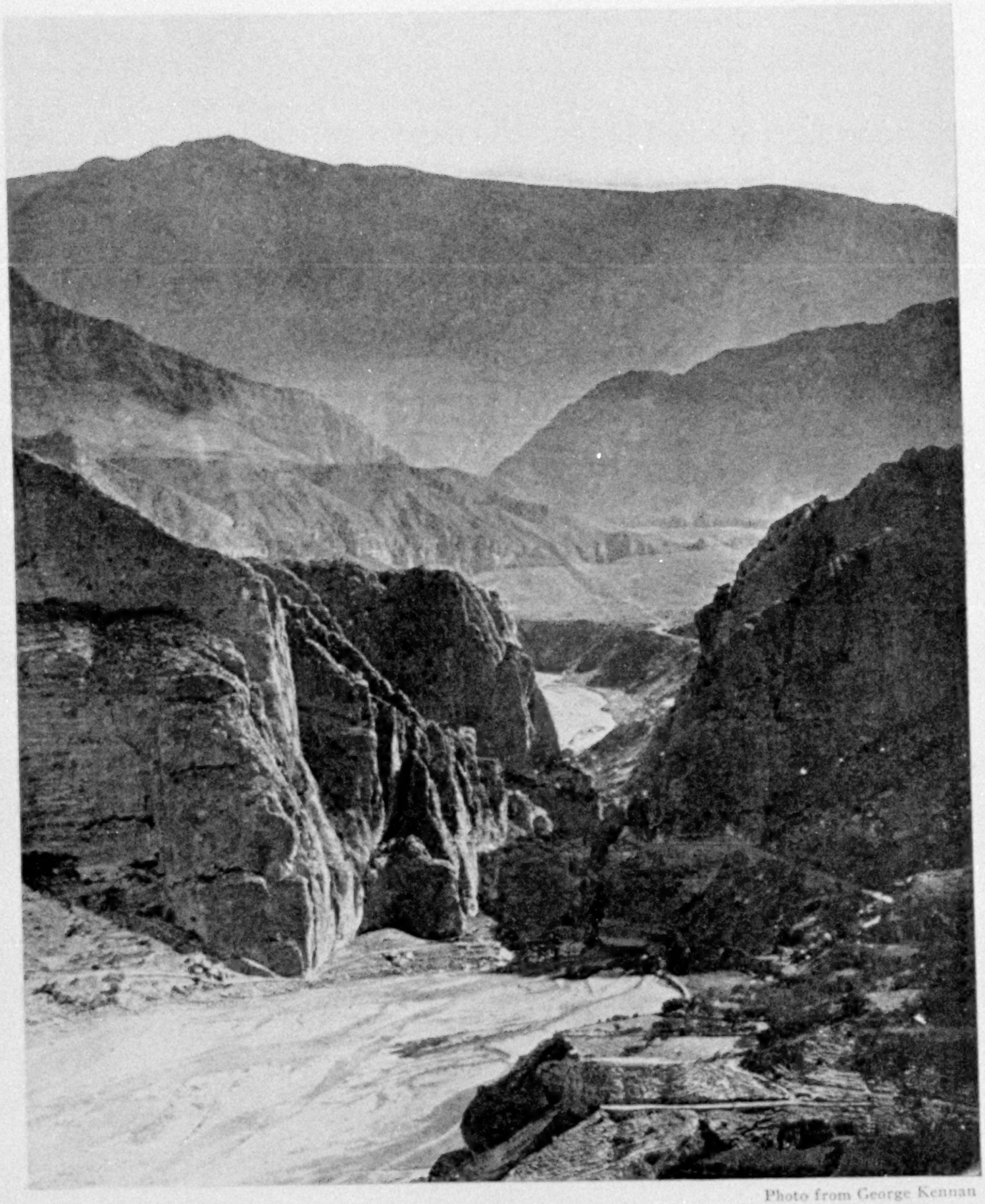


Photo from George Kennan

THE KHARTIKHUNSKI RAVINE

"Some of these gorges are 10 or 15 miles long and 2,000 feet deep—immense natural galleries, carpeted with alpine grass, frescoed above with drifting clouds, and having whole villages hung against their walls for pictures" (see text, page 1115).

Photo from George Kennan

THE CROOKED TRAILS OF DAGHESTAN

"The road . . . wound through dark canyons with almost precipitous sides, now descending to the edge of a roaring torrent, then climbing in a series of shelf-like zigzags to a height of a thousand feet, running for a quarter of a mile along the brink of a tremendous precipice, climbing again half a dozen more zigzags, crossing a divide, and finally plunging into a gorge equally dark, gloomy, and precipitous on the other side" (see text, pages 1111 and 1115).

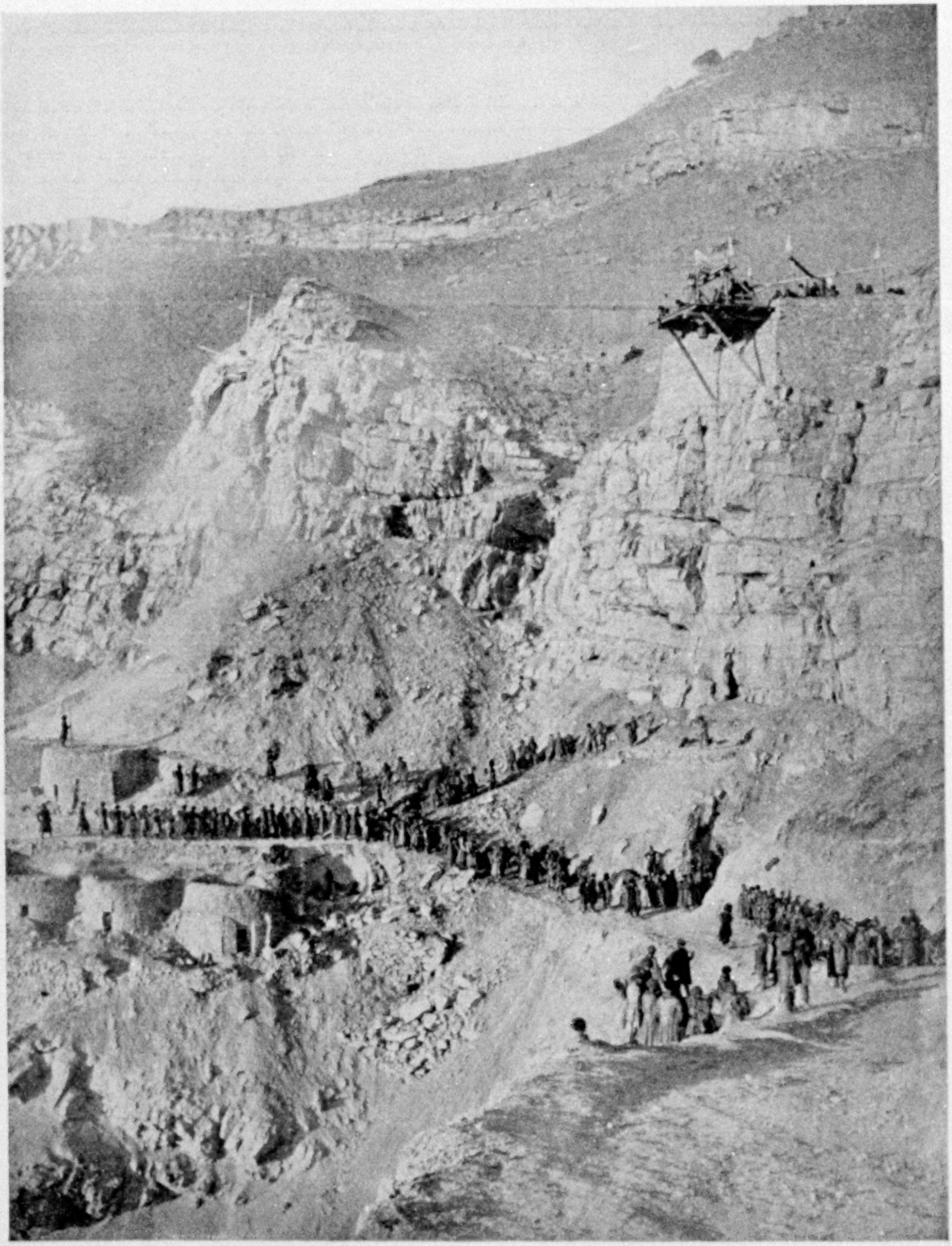


Photo from George Kennan

THE SULPHUR MINE OF KHIYUT

The mining industry of the Caucasus is rapidly growing in importance, despite the lack of good means of communication. The whole of this region is very rich in mineral deposits. Copper and manganese are obtained in large quantities; quick-silver, sulphur, and iron mines are worked, and good steam coal is known to exist.

THE BOUNDLESS HOSPITALITY OF THE MOUNTAINEERS

At all the large *aouls* in northern Daghestan, where Prince Djordjadzi was well known, we were received with boundless hospitality. Cattle and sheep innumerable were slaughtered for barbecues and pilaus. Everything in the shape of food that the country afforded was set before us; and night after night we reclined on a soft rug at the door of some mountaineer's house, with a bonfire blazing in the courtyard, and listened to the songs of the Lesghians, or watched the brilliantly dressed men and women whirling in their strange national dance to the barbaric music of fifes, bagpipes, kettle-drums, and tambourines. The inhabitants of northern Daghestan, living in comparatively wide and open valleys and within easy reach of a market, are much more wealthy and civilized than those whose homes are far back in the deep valleys or on the precipitous terraces of the high mountains, and their social customs have been more or less modified by intercourse with the Russians.

We soon left behind us, however, these hospitable villages and plunged into the wonderful labyrinth of dark ravines in central Daghestan (see pages 1088 and 1089). The most vivid and faithful description could hardly do justice to the savage wildness of the scenery that was presented to us as we rode southward toward the headwaters of the rushing torrent known as the Avarski Koisu.

Upheavals, fractures, volcanic activity, and torrential floods had apparently tilted, faulted, disrupted, broken, and eroded the geological strata of Daghestan until not a single square mile of level and undisturbed ground was left. Even from the highest ridges and watersheds that we crossed nothing could be seen but a chaos of treeless mountains, high, isolated mesas, gigantic precipices, and deep, gloomy ravines, through which boiled and roared the rock-tormented waters of a hundred snow-born streams.

So far as I could judge without accurate geological knowledge, Daghestan consisted originally of an extensive plateau of sedimentary limestones and shales, which was tilted up by the elevation of the main range until its southern edge lay on the granitic rock of the mountain backbone at a height of perhaps 8,000 feet. From that point it sloped northward and downward until it reached the level of the sea at the boundary of the south Russian steppes.

HOW NATURE CHANGED A PLAIN INTO A WALL

At the time of its formation, or perhaps earlier or later, this sloping plateau was more or less broken and dislocated by upheavals of igneous rock, and was then cut, channeled, and furrowed into deep, narrow ravines and canyons by scores of mountain torrents, which rose in the high trough between the main range and the so-called snowy range and ran down the 8,000-foot slope to the level of the Caspian.

I do not know that this is a scientifically accurate explanation of the present contour of Daghestan; probably it is not; but at least it accounts in a conjectural way for many of the striking topographical features of the country. Scores of the peaks and ridges that have pierced or fractured the limestones and shales between the steppes and the main range are unquestionably granitic.

The great sulphur mine of Khiyut (see page 1110) affords evidence of volcanic action; and the deep, narrow gorges of the Koisus and their tributaries show the effects of running water as clearly as do the canyons of Arizona. If a line could now be drawn from the main range to the Russian steppes across the tops of the isolated mesas that stand here and there in the labyrinth of deep gorges, it would represent, roughly, the slope of that ancient uptilted plateau before it had been cut into a maze of gloomy galleries by the eroding action of running water.

UNRIVALED MOUNTAIN SCENERY

The road—or rather the bridle path—that we followed after leaving Joongootai wound through dark canyons with almost precipitous sides, now descending to the edge of a roaring torrent, then climbing in a series of shelf-like zigzags to a

Photo from George Kennan

THE KHONKADATEL RAVINE

"The great ravine of Khonkadatel is 3,000 or 4,000 feet deep, and the trail that leads into it crosses the faces of tremendous precipices on narrow cornices or shelves, descends rude stairways of hewn rock a hundred feet in length, and runs down steep zigzags to sharp corners, where a horse must turn within his own length or slide off into a thousand feet of empty air" (see text, page 1117).

XUM

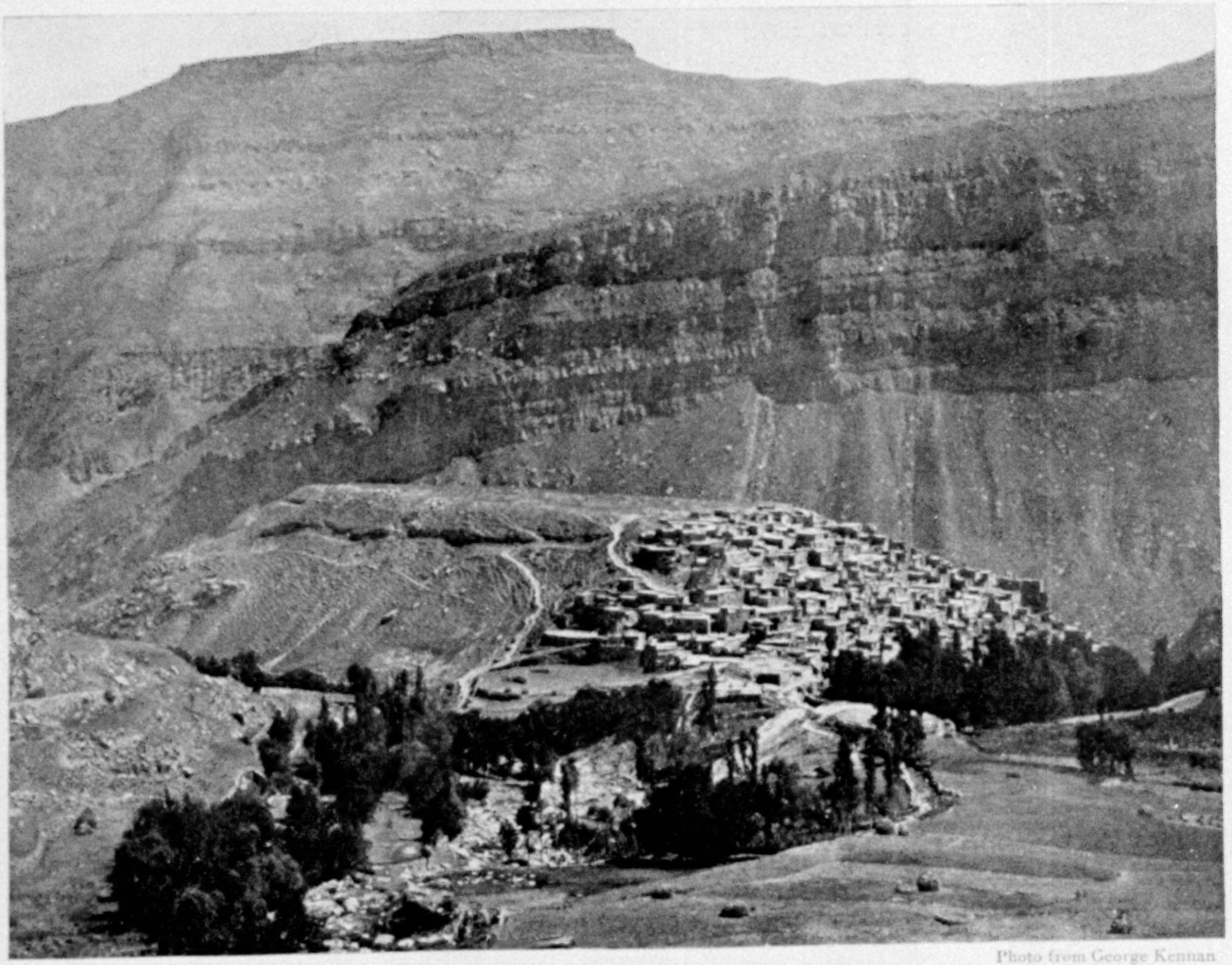


Photo from George Kennan

THE AOUL OF KUMALI

This picture is typical of many villages in the Caucasus. They are situated in almost treeless valleys, surrounded by bare rocks and slopes forbidding in their steepness, while the rough-built houses of the little communities are scarcely to be distinguished from the crags among which they stand.

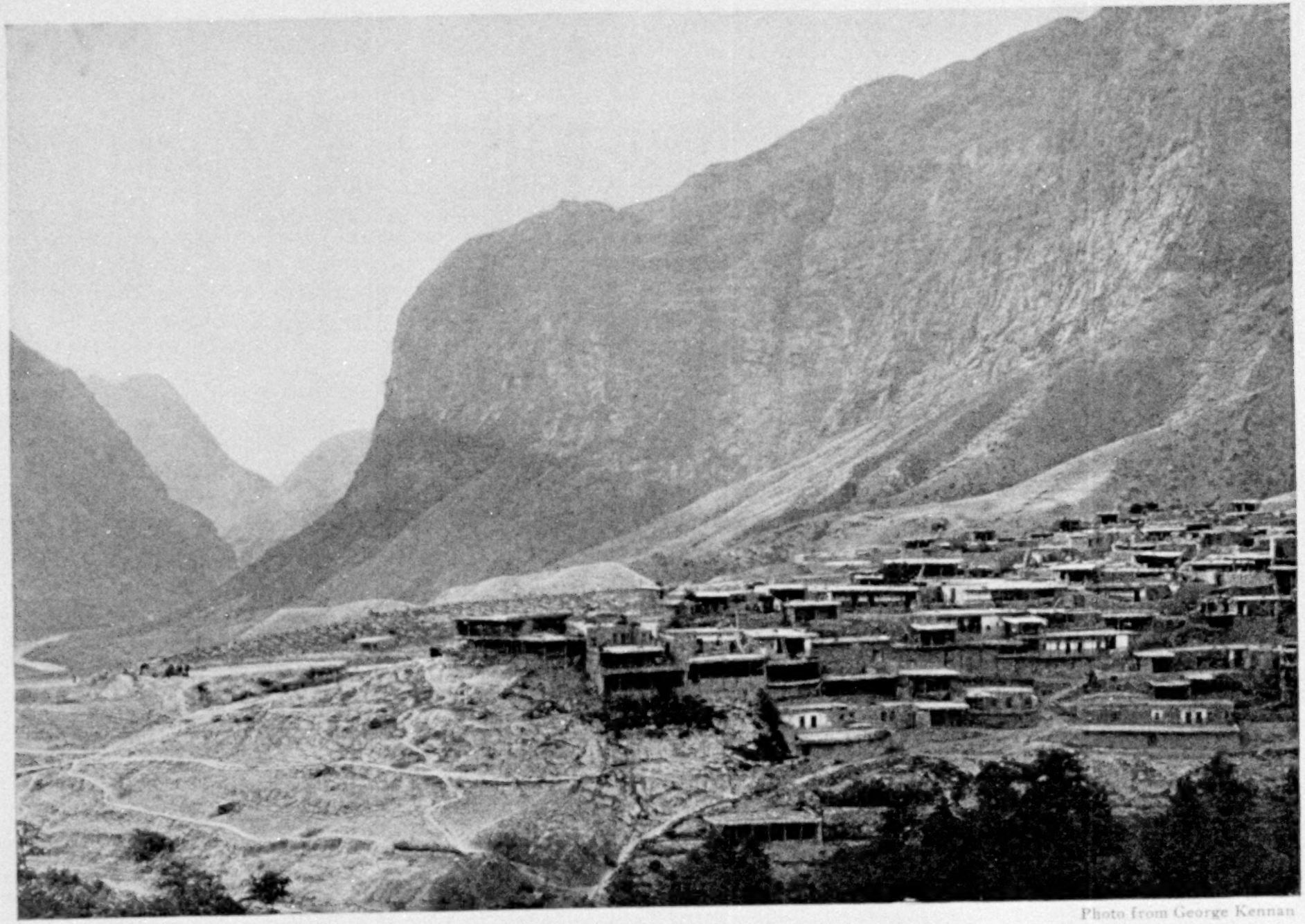


Photo from George Kennan

THE VILLAGE OF GIMRY

"The descent into the valley of Gimry is made by a zigzag bridle path 13 miles in length, although the distance from the top of the cliff to the bottom in an air line is probably less than a mile" (see text, page 1117)

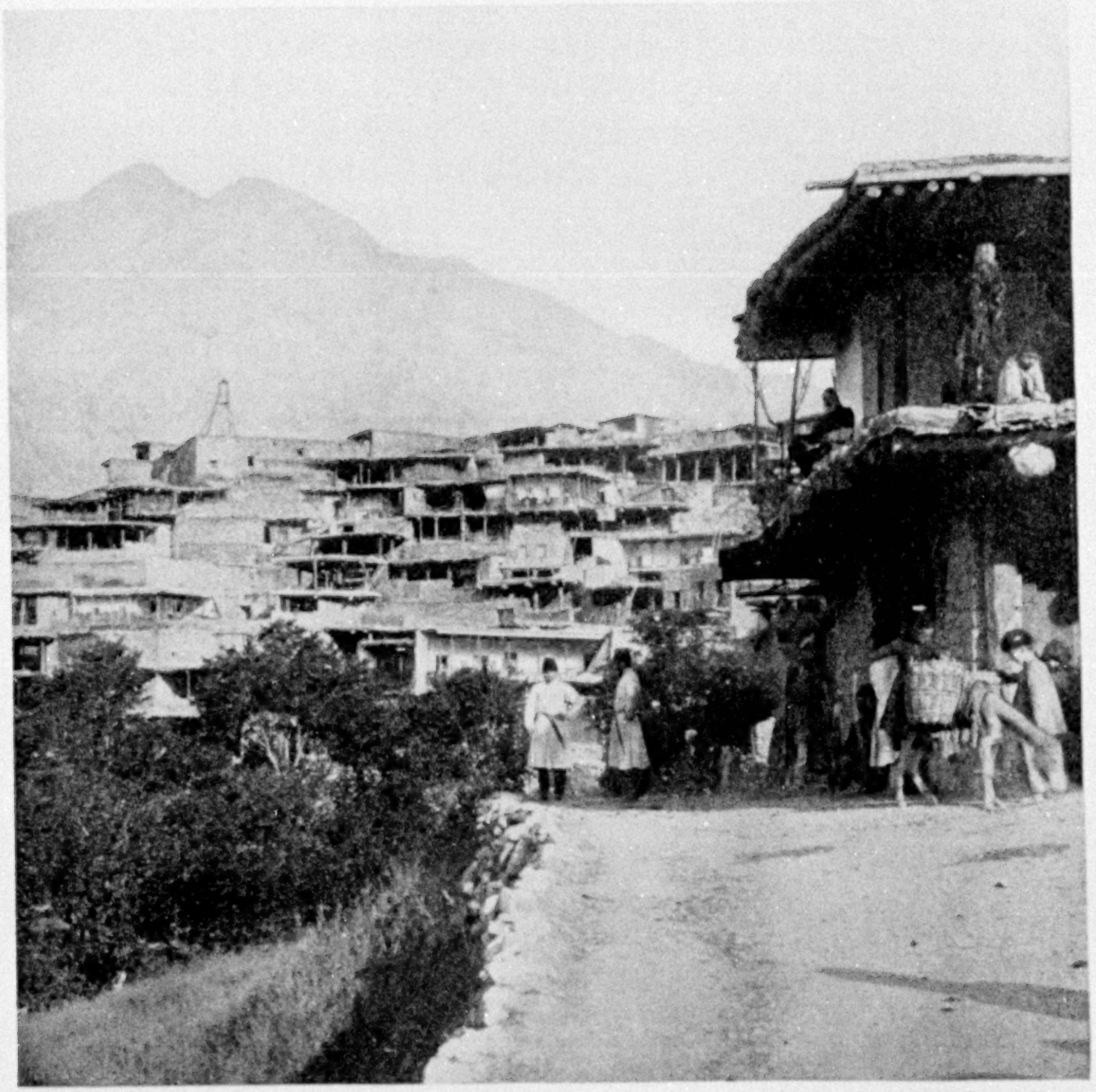


Photo from George Kennan

THE ENTRANCE TO A VILLAGE

"In some *aouls* the streets, or passages, from house to house are dark underground corridors, out of which the inhabitants climb into their dwellings on perpendicular ladders or notched logs" (see text, page 1117).

height of a thousand feet, running for a quarter of a mile along the brink of a tremendous precipice, climbing again half a dozen more zigzags (see page 1109), crossing a divide, and finally plunging into a gorge equally dark, gloomy, and precipitous on the other side.

These canyon-like ravines are the most striking topographical features of central Daghestan (see pages 1089 and 1108). They are seldom more than 300 or 400 feet wide at the bottom, and are shut in by high walls, which are either sheer precipices or steep slopes broken into narrow, step-like terraces by outcropping ledges of sedimentary rock (see page 1134). Some of these gorges are 10 or 15 miles long and 2,000 feet deep—immense natural galleries, carpeted with alpine grass, frescoed above with drifting clouds, and having whole villages hung against their walls for pictures.

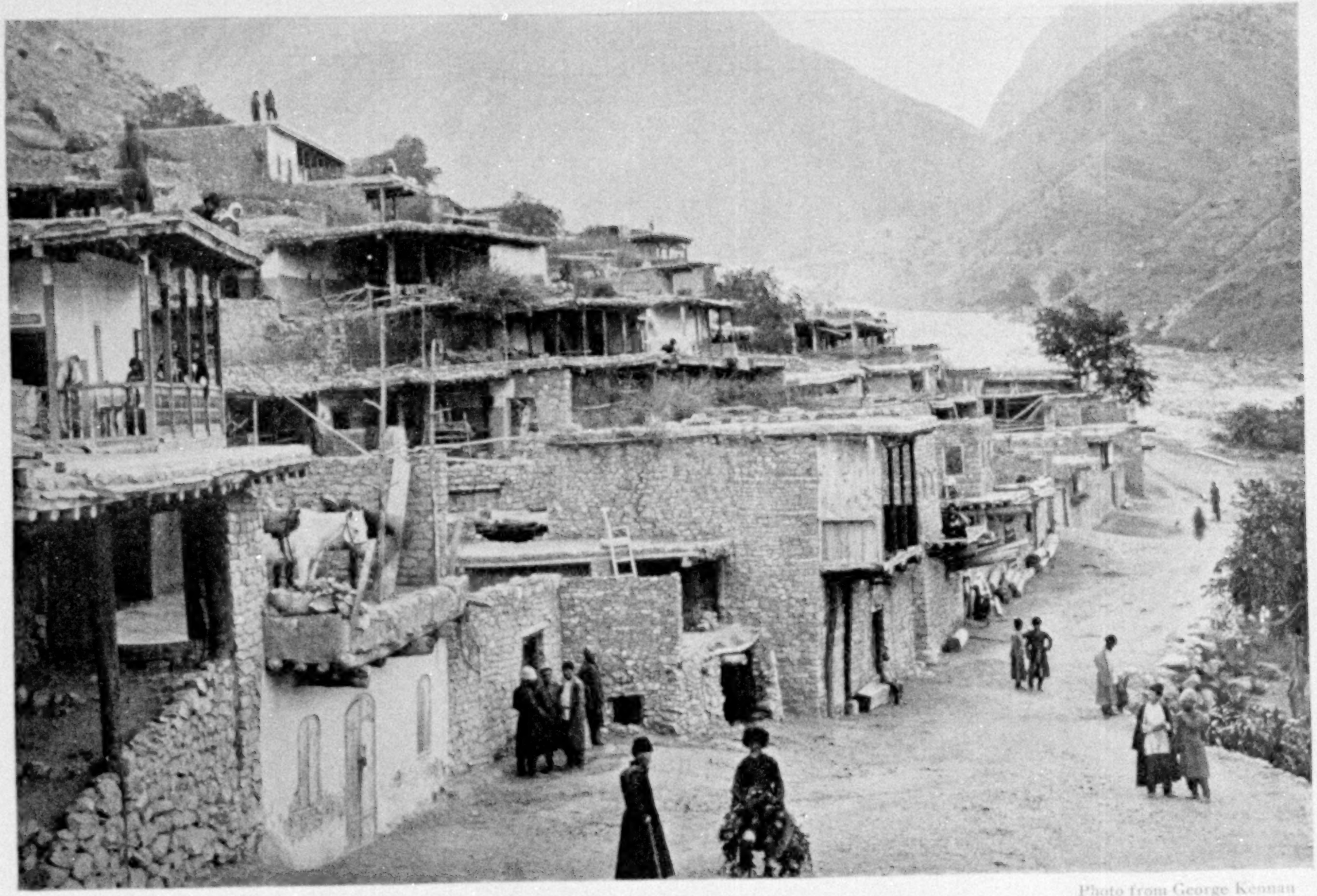


Photo from George Kennan

A NEARER VIEW OF GIMRY

"Some of these *auuls* are so much like New Mexican pueblos, both in location and in architecture, that they would seem to have been built by closely related peoples; but the resemblances, of course, are due to similarity of environment and conditions, not to a common ethnological inheritance" (see text, page 1121).

Through these eroded galleries run mountain streams, which are generally rapid but narrow and which are spanned where the bridle paths cross them by rude log-and-plank bridges of the type shown on pages 1102 and 1103. Bridges of this kind are to be found in many parts of western Europe, and are common in Scandinavia; but it is so difficult to throw them across the boiling torrents of Daghestan that in all the mountain communities the punishment for willful destruction of a bridge is death.

The ravines through which these bridge-spanned torrents flow make travel across the country extremely difficult. Getting out of one and into another involves four or five hours of climbing or sliding on steep zigzags, and a ride of 10 miles across two or three of them is a hard day's journey. The descent into the valley of Gimry (see page 1114), for example, is made by a zigzag bridle path 13 miles in length, although the distance from the top of the cliff to the bottom in an air line is probably less than a mile.

The great ravine of Khonkadatel is 3,000 or 4,000 feet deep, and the trail that leads into it crosses the faces of tremendous precipices on narrow cornices or shelves, descends rude stairways of hewn rock a hundred feet in length, and runs down steep zigzags to sharp corners where a horse must turn within his own length or slide off into a thousand feet of empty air (see page 1112).

THE VILLAGES PERCHED LIKE EAGLES' NESTS AMONG THE CRAGS

As we gradually approached the main range, the *aouls*, or mountain villages, became more and more daring and picturesque in their locations. Settlements in the valley bottoms grew less and less frequent and finally disappeared altogether, while high overhead every precipice, every terrace, or projecting buttress of rock was crowned with the flat-roofed, closely massed houses of an *aoul*.

As the heterogeneous clans of the mountain population have been at war for centuries, they have learned to build their villages in places that can be easily defended, and from the bottoms of the valleys they look like eagles' nests, and seem at first glance to be absolutely inaccessible.

The *aoul* of Ochau, for example, in southwestern Daghestan, was situated on a terrace, or shelf of rock, not less than 2,000 feet above the valley of the Avarski Koisu, and was reached by a narrow trail which climbed the precipitous side of the great ravine in more than 20 zigzags. We were directly under the village before sunset; but long ere we reached it, it had begun to grow dark, the alpine gorge had filled with clouds, and we found ourselves climbing heavenward, on a never-ending ladder of zigzags, in a great ocean of chilling vapor.

To reach that settlement from the bottom of the valley cost us more than two hours of hard climbing; but we struggled up into the clear evening twilight at last and looked down from our rocky Ararat upon the great white sea of clouds out of which we had come and into which we should have to descend on the following morning.

PUEBLO-LIKE ARCHITECTURE FOUND IN DAGHESTAN

Many of the *aouls* of central and southern Daghestan bear a striking resemblance to the pueblos and cliff-dwellings of New Mexico. The stone-walled houses are built together in a compact mass on the steep slope of a high terrace, and the flat roofs rise in tiers or steps, one above another, just as they do in the settlements of our pueblo Indians. The roof of one house forms a small square front yard for the occupants of the house next above it, and ladders serve as means of intercommunication between the roofs of the ascending tiers (see page 1118).

In some *aouls* the streets, or passages, from house to house are dark underground corridors, out of which the inhabitants climb into their dwellings on perpendicular ladders or notched logs. As the country is nearly treeless and affords comparatively little wood, the walls of the one-story buildings are almost invariably of roughly broken stone and the roofs and floors are usually of clay mixed with chopped straw and beaten hard.

Near the center of every large village

Photo from George Kennan

THE PUEBLO-LIKE DWELLINGS OF DAGHESTAN

"Many of the *aouls* of central and southern Daghestan bear a striking resemblance to the pueblos and cliff-dwellings of New Mexico. The stone-walled houses are built together in a compact mass on the steep slope of a high terrace, and the flat roofs rise in tiers or steps, one above another, just as they do in the settlements of our pueblo Indians. The roof of one house forms a small square front yard for the occupants of the house next above it, and ladders serve as means of intercommunication between the roofs of the ascending tiers" (see text, page 1117).

Photo from George Kennan

THE ROUGH STONE DWELLINGS OF THE VILLAGES

"As the country is nearly treeless and affords comparatively little wood, the walls of the one-story buildings are almost invariably of roughly broken stone and the roofs and floors are usually of clay mixed with chopped straw and beaten hard" (see text, page 1117)

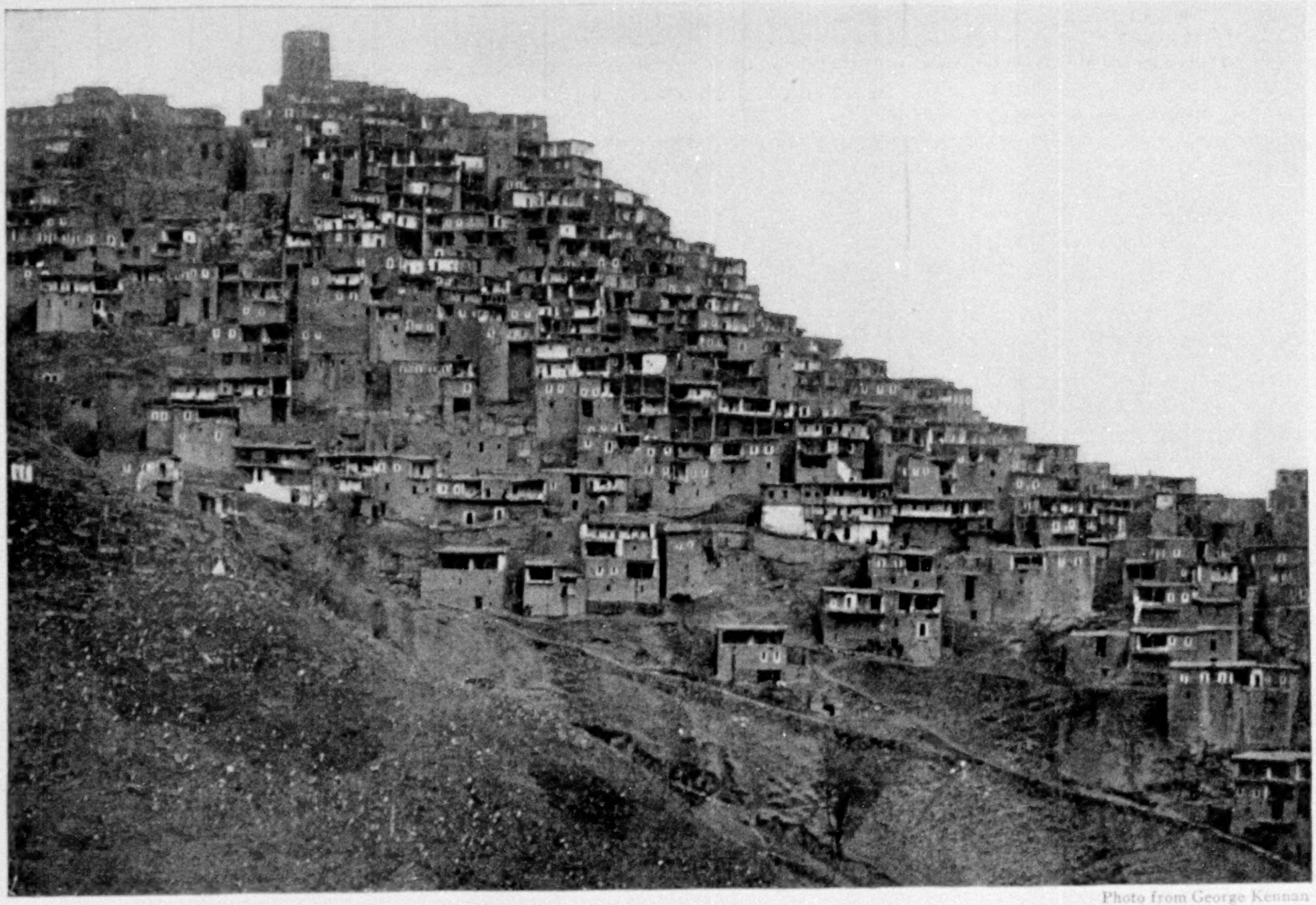


Photo from George Kennan

AN AOUL OR MOUNTAIN VILLAGE

"As we gradually approached the main range, the *aouls*, or mountain villages, became more and more daring and picturesque in their locations. . . . As the heterogeneous clans of the mountain population have been at war for centuries, they have learned to build their villages in places that can be easily defended, and from the bottoms of the valleys they look like eagles' nests, and seem at first glance to be absolutely inaccessible" (see text, page 1117).

rises the slender stone minaret of the Mohammedan mosque, and on some high point of vantage stands a square loop-holed war-tower, in which the surviving inhabitants take refuge and defend themselves to the last when their village has been taken by assault. Some of these *aouls* are so much like New Mexican pueblos, both in location and in architecture, that they would seem to have been built by closely related peoples; but the resemblances, of course, are due to similarity of environment and conditions, not to a common ethnological inheritance.

The mind of man thinks and reasons in the eastern Caucasus just as it does in Arizona and New Mexico, and when the environment and the conditions are the same, the results are almost identical.

THE WONDERFUL RACIAL TYPES OF THE CAUCASUS

Although the *aouls* of Daghestan closely resemble one another in situation and type, the people who live in them differ widely in features, coloring, language, and origin. Some of them have the blue eyes, blond beards, and fair skin of the Germans described by Tacitus, while others are unmistakably Jews, Tatars, Persians, Armenians, or colonists from the Mediterranean.

I do not mean that they have had any recent connection with the people now called by those names. Their ancestors separated from the ancestors of the latter perhaps thousands of years ago. Many of the Tatars are descendants of the wild nomads who rode westward from central Asia under Genghis Khan and Tamerlane; the Jews were certainly settled in the eastern Caucasus long before the birth of Christ; the Teutons were probably there before any of the Aryan tribes moved into the territory that is now Germany, and the Mediterranean colonists sailed from Italy and Greece perhaps as early as the time of Æschylus and Pindar.

But the Jews, Teutons, Celts, Persians, Arabs, and Monglos who now live in the eastern Caucasus are not brothers of the peoples called by the same names in Asia and western Europe; they are cousins a hundred times removed. Long isolation and a mountainous environment, moreover, have so modified them psychologically that they no longer resemble the peoples to whom they are ethnologically related (see page 1127).

In character and temperament they are much more like one another than they are like the races and nationalities whose physical types they still retain. Their features and coloring are those of their remote ancestors; but their minds all bear the impress of the mountainous environment in which, for hundreds of generations their forefathers lived.

Their languages, even, have changed to such an extent that they are hardly recognizable as variations of Aryan, Semitic, or Mongolian speech. Seventeen different languages are spoken by the highlanders of Daghestan, but only a few of them can be referred with certainty to any known linguistic stock. In some parts of the province I heard the sharp, peculiar clicks which are characteristic of certain south African tongues, but which do not occur as consonantal sounds in any of the written languages of Europe or Asia.

MOHAMMEDANS WHO COULD BE MISTAKEN FOR SCOTTISH ELDERS OF THE KIRK

The predominant ethnological types in the parts of Daghestan that I visited were Teutonic or Celtic. Some of the men whom I saw would have been taken for Germans in any capital of western Europe, while others were so unmistakably Scottish that they might have been McKenzies, McDonalds, or McLeans from Argyle or Inverness. A Daghestan highlander of the Scots type is shown on page 1125. If this man, in Canadian dress, should walk into a Presbyterian kirk in Nova Scotia on a Sunday morning, every member of the congregation would take him for Scotsman, and would expect him to understand the Gaelic sermon and join in the singing of the Gaelic psalms. And yet he and his ancestors have probably lived in the Caucasus for a thousand years.

Intellectually, these highlanders of the Teutonic, Anglo-Saxon, and Celtic type are more nearly akin to us Americans than are any of their hundred-times-re-

XUM

Photo from George Kennan

A GATHERING OF THE CHIEFS

This picture shows an assemblage of the headmen from various mountain villages throughout Daghestan. Note the extraordinary variety of facial types. The old gentleman with the white beard would pass anywhere for a Scotsman, while his neighbors on either side are unmistakably Asiatic.

Photo from George Kennan

GEORGIAN WOMAN IN NATIONAL DRESS

Georgia lies to the south of Daghestan, and for 2,000 years was an independent kingdom. Its inhabitants are pure Caucasians and often singularly handsome, and so during the period of Moslem domination Georgia supplied great numbers of female slaves for Turkish harems and recruits for the famous corps of Mamelukes.

XUM

Photo from George Kennan

HIGHLANDERS IN THE RUSSIAN SERVICE

The natives of the Caucasus have taken arms eagerly in the Russian army. There are three divisions of Caucasian Cossacks, a brigade of infantry, two cavalry divisions, and two brigades of rifles, each of four battalions, and all of them composed of these hardy warriors from the highlands and many of them officered by Caucasian chieftains.

XUM

Photo from George Kennan

A DAGHESTAN CELT

This old lady, a Moslem of the Moslems, presents such a marked Celtic type that if she were found sitting outside a cottage door in Wales or Cornwall no one would ever suspect that she was not a native of the British Isles.

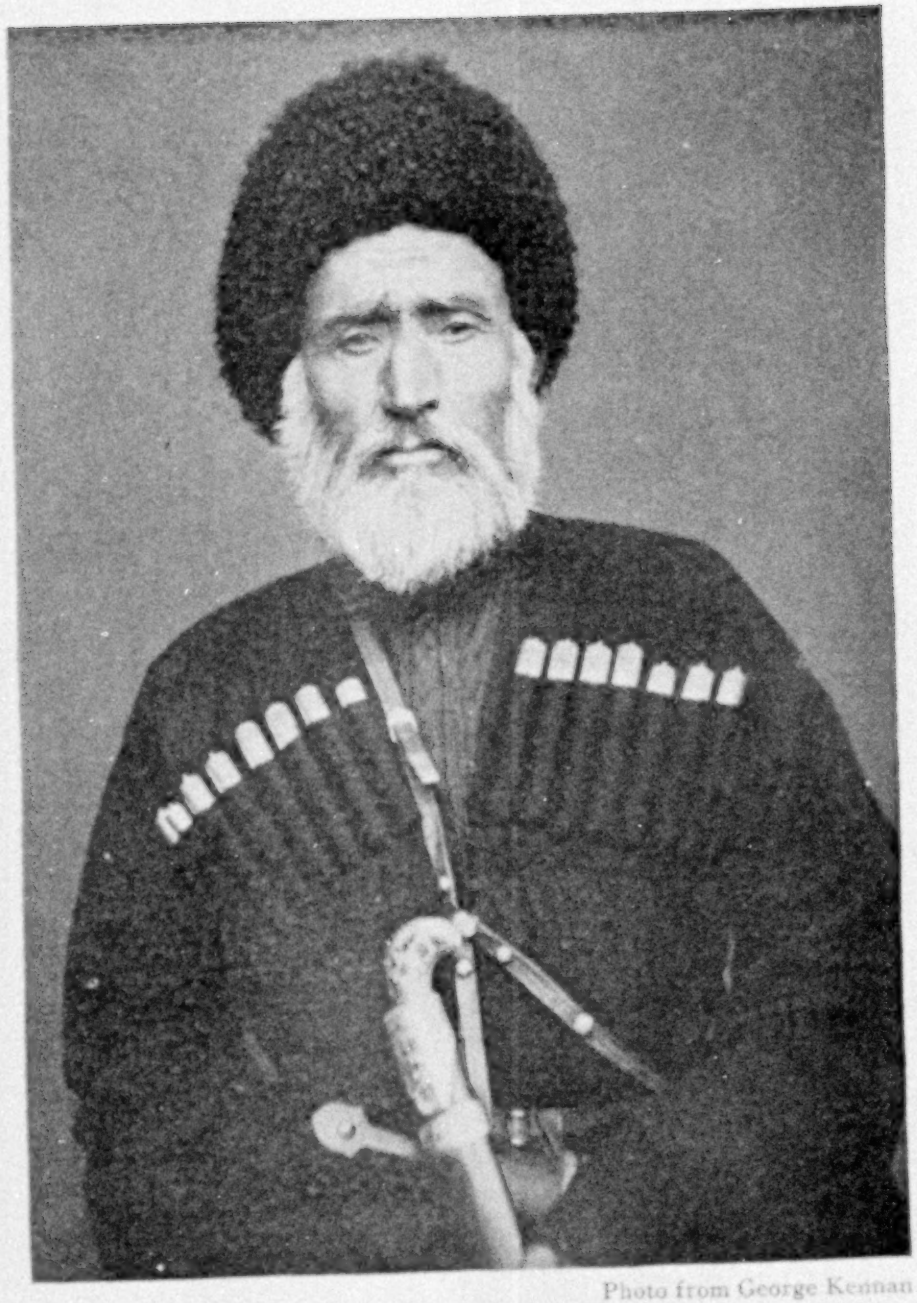


Photo from George Kennan

A SCOTSMAN OF DAGHESTAN

"If this man, in Canadian dress, should walk into a Presbyterian kirk in Nova Scotia on a Sunday morning, every member of the congregation would take him for a Scotsman, and would expect him to understand the Gaelic sermon and join in the singing of the Gaelic psalms" (see text, page 1121).

Photo from George Kennan

JEWISH GIRLS OF THE CAUCASUS

In Daghestan there are four or five thousand Jews who have been out of touch with their co-religionists for centuries. They have lost their language and their national character, but still cling tenaciously to their religion.

Photo from George Kennan

A PERSIAN

In the lowlands of the eastern Caucasus are many colonies of pure-blooded Persians, now under allegiance to Russia

Photo from George Kennan

A MOUNTAINEER OF THE GERMAN TYPE

"The Jews, Teutons, Celts, Persians, Arabs, and Mongols who now live in the eastern Caucasus are not brothers of the peoples called by the same names in Asia and western Europe; they are cousins a hundred times removed" (see text, page 1121).

Photo from George Kennan

A HIGHLANDER OF THE ITALIAN TYPE

"In character and temperament they are much more like one another than they are like the races and nationalities whose physical types they still retain. Their features and coloring are those of their remote ancestors; but their minds all bear the impress of the mountainous environment in which, for hundreds of generations, their forefathers lived" (see text, page 1121).

Photo from George Kennan

A CAUCASIAN FALCONER

Among the many customs of the past which still survive in the highlands of Daghestan is that of falconry. Falcons and hawks are carefully trained for the chase and are used in hunting birds and small game animals.

Photo from George Kennan

A CAVALRYMAN

As might be expected from a warlike race, many of the Daghestan highlanders have taken service in the Russian army.

Photo from George Kennan

AN ARMENIAN

Among the many racial types found in the Caucasus the Armenians are well represented. They live on the southern side of the range, mainly in the valleys of the foothills, and are seldom found in the higher parts of the mountains.

moved cousins in Germany, England, and Scotland. There is no form of American wit or humor that would not be instantly understood and keenly appreciated in scores of Caucasian *aouls*, and many anecdotes that are current in the United States have been independently thought out and put into effective literary shape by the mountaineers of Daghestan.

WHERE AMERICAN HUMOR IS AT HOME IN RUSSIA

American jokes, bragging stories, and humorous exaggerations can be put into the brains of these quick-witted highlanders without a surgical operation, and many of their skits and yarns are precisely like ours, both in spirit and in form. I heard one night, in a lonely Caucasian *aoul*, a humorous story that had been told me less than a year before by a student of the Western Reserve College at Hudson, Ohio, and that was doubtless invented, independently, by brains 6,000 miles apart.

But the Caucasian mountaineers have more kinds of jokes, stories, and anecdotes than we have. Living as they do on the boundary line between Europe and Asia, made up as they are of many diverse races—Aryan, Mongolian, and Semitic—they inherit all the traditionary lore of two continents, and hand down from generation to generation the fanciful tales of the East, mingled with the humorous stories, the witty anecdotes, and the practical proverbs of the West. You may hear today in almost any Caucasian *aoul* didactic fables from the Sanscrit of the *Hitopadesa*, anecdotes from the *Gulistan* of the Persian poet Saadi, old jokes from the Grecian jest-book of Hierocles, and humorous exaggerations which you would feel certain must have originated west of the Mississippi River.

The poems of the Daghestan highlanders, and especially their war songs and laments, show that while they are temperamentally fighters, and often blood-avengers or brigands, they have strong human feelings and many fine mental and emotional traits. Their indomitable fortitude is expressed in the noble proverb, "Heroism is endurance—for one moment more," and their hospitality in the proverbial saying, "A guest—a man from God."

PATHOS AND POETRY OF THE MOUNTAIN FOLK SONGS

They are passionately fond of music, skillful in metrical improvisation, and gifted with delicate poetic sensibility. What could be more imaginative in conception and felicitous in expression, for example, than this colloquy between mother and daughter, which is translated without embellishment from a well-known Daghestan song.

The daughter says:

"Come out of doors, O mother! and see what a wonder is here!
Up through the snows of the mountain the flowers of spring appear!
Come out on the roof, O mother! and see how along the ravine
The glacier ice is covered with the spring-time's leafy green!"

The mother replies:

"There are no flowers, my daughter, 'tis only because thou art young
That blossoms from under the mountain snows appear to thee to have sprung.
There is no grass on the glacier—the blades do not even start;
But thou art in love, and the grass and flowers are springing in thy heart."

Was better expression ever given to the thought that all the world seems fresh and beautiful to one who is young and in love?

Day after day Prince Djordjadzi and I rode from *aoul* to *aoul* through the wild mountain scenery of the eastern Caucasus, sometimes climbing through low-hanging clouds to solitary shepherds' huts on the high mesas, 4,000 feet above the sea; sometimes descending into narrow, gloomy gorges which suggested the canyons of Arizona, and sleeping every night in the flat-roofed stone houses of the fierce, wild but hospitable mountaineers. The state of society in which we found ourselves was as rude and savage in some respects as that which Cæsar found among the barbarians of ancient Gaul, and almost every day we had an opportunity to observe customs and

XUM

Photo from George Kennan

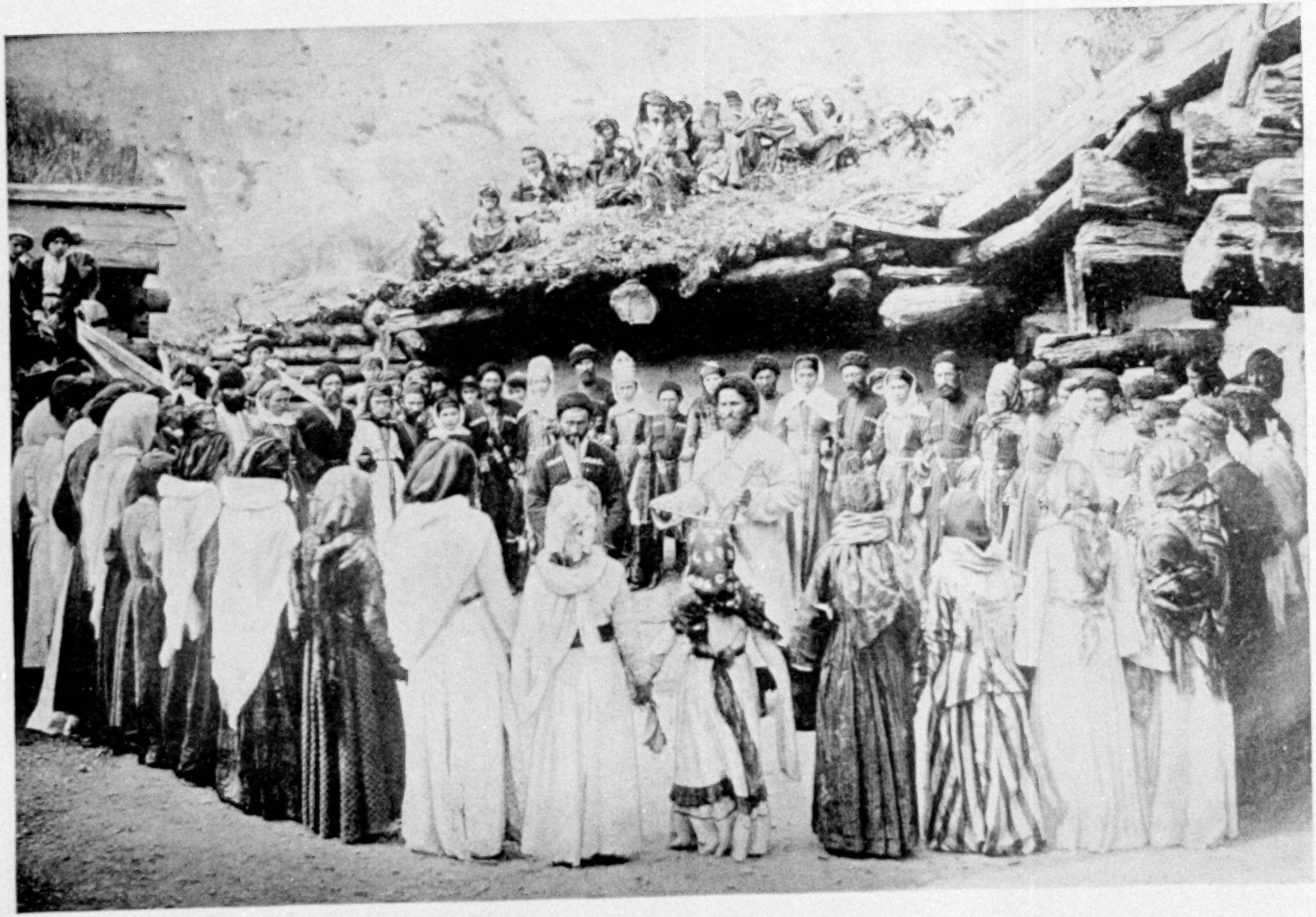
A WOMAN OF SOUTHERN DAGHESTAN

Like most of the daughters of Eve, the Daghestan women have a passion for adorning themselves. The profusion of jewelry worn by this woman, the gold bedecked head-dress, the rings on every finger, and, finally, the liberal use of the eyebrow pencil, prove her no exception to the rule.

Photo from George Kennan

A TATAR WOMAN OF SHAMKAL

Among the mixture of races and tongues in the Caucasus the Tatars are well represented. They are found in greatest numbers in northern Daghestan and in the steppes which stretch northward from the mountains. This Tatar woman is wearing her national costume.



A CAUCASIAN COUNTRY DANCE

This is a very odd and striking dance peculiar to the Caratschai in the southern Caucasus. A ring is formed, with the musicians in the center, and the dancers merely jump up and down as the ring moves slowly around. Every festivity opens and closes with this performance, which, to westerr ideas, is not very suggestive of dancing.

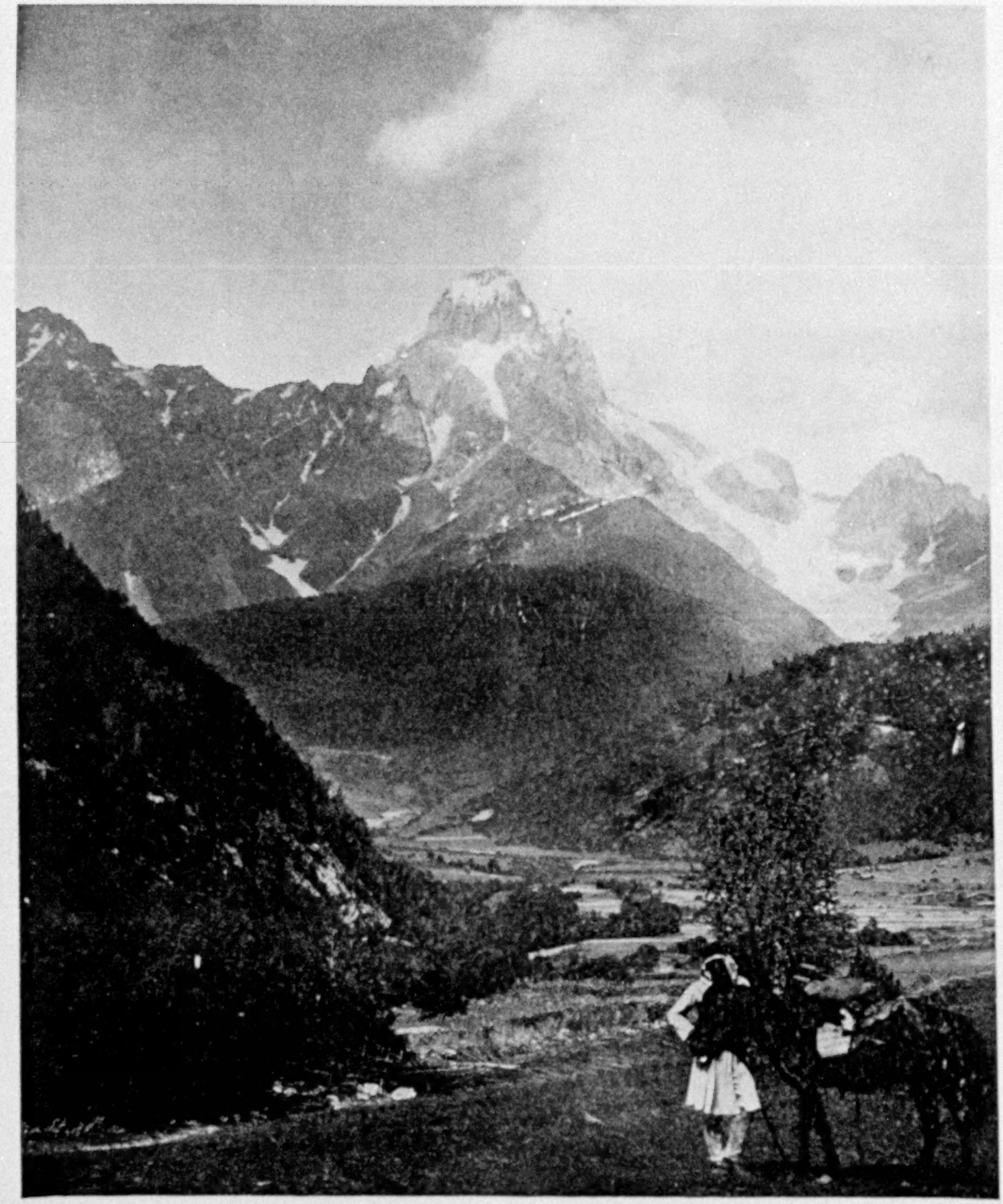


Photo by Vittorio Sella

A DISTANT VIEW OF USHBA

A remarkable feature of the central Caucasus is its luxuriant and abundant vegetation. In the sheltered valleys many of the more beautiful flowering shrubs are found, such as the magnolia, the camellia, and the azalea. Note the number of trees and shrubs in the picture.

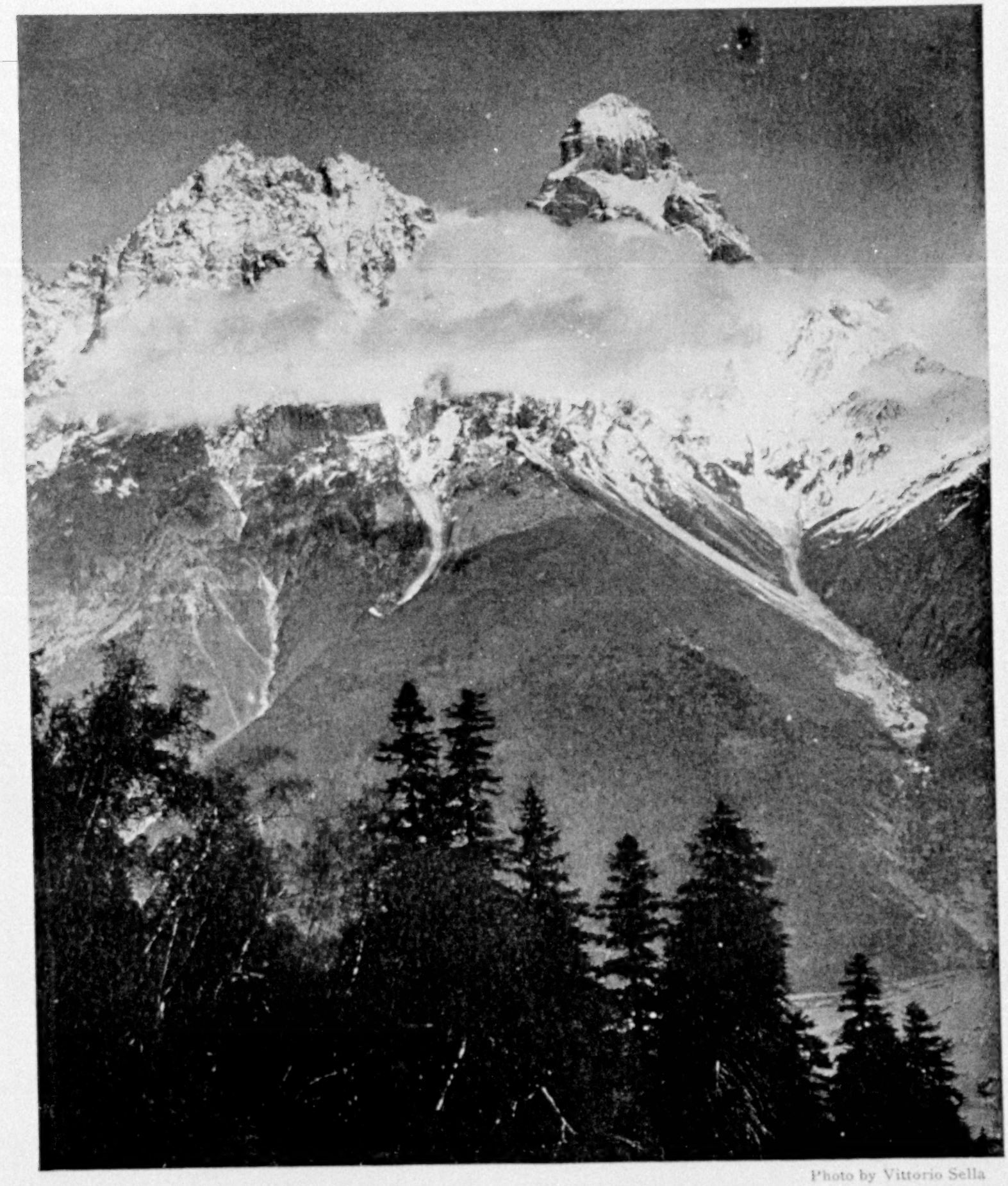


Photo by Vittorio Sella

THE BEAUTIFUL PEAK OF USHBA

One of the most beautiful mountains in the central Caucasus is Ushba, which rises to the height of 15,410 feet. Until ten years ago this peak, which is higher than the Matterhorn, had never been climbed.

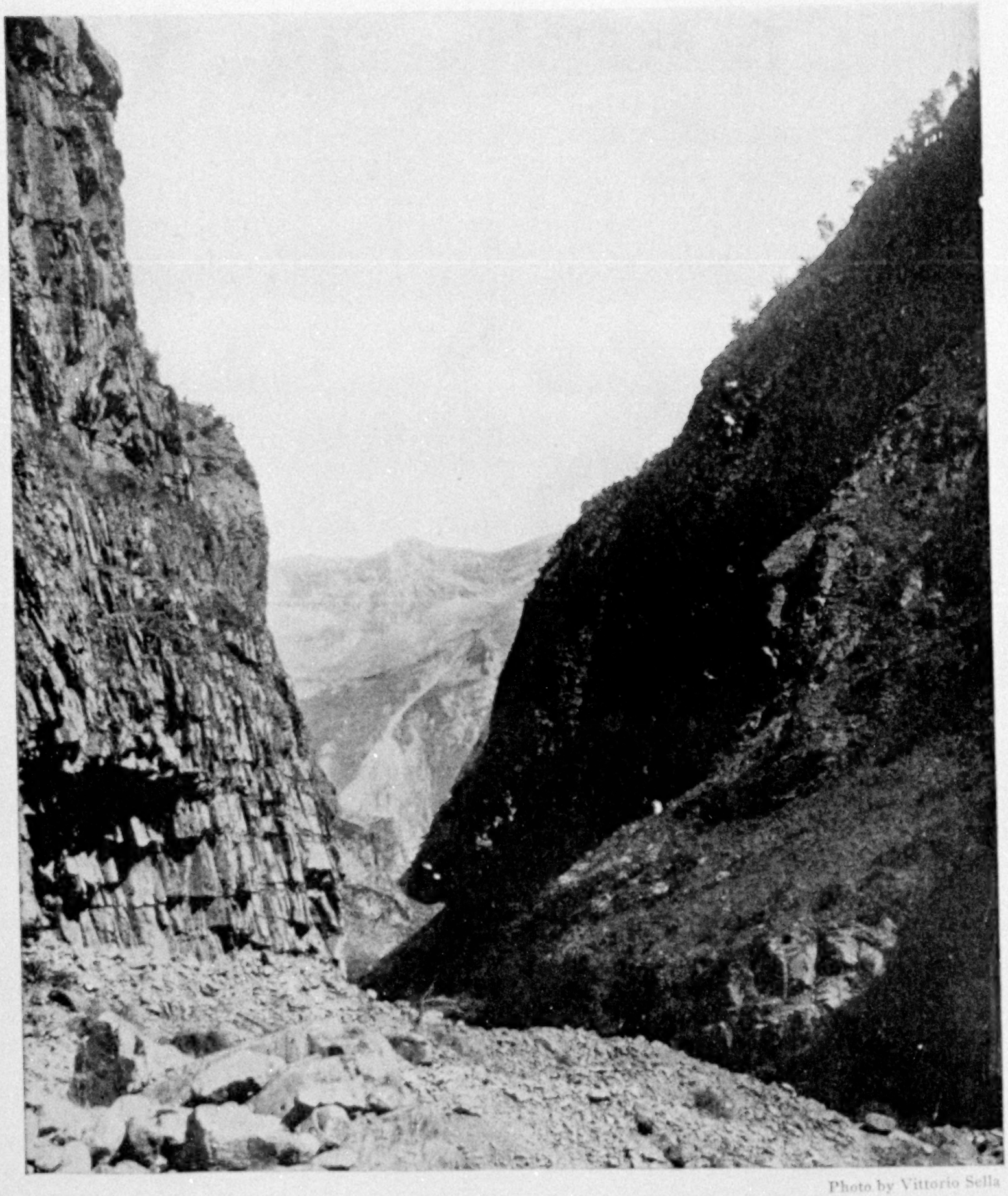


Photo by Vittorio Sella

A TYPICAL CAUCASIAN CANYON

"These canyon-like ravines are the most striking topographical features of central Daghestan. They are seldom more than 300 or 400 feet wide at the bottom, and are shut in by high walls, which are either sheer precipices or steep slopes broken into narrow, step-like terraces by outcropping ledges of sedimentary rock" (see text, page 1115).

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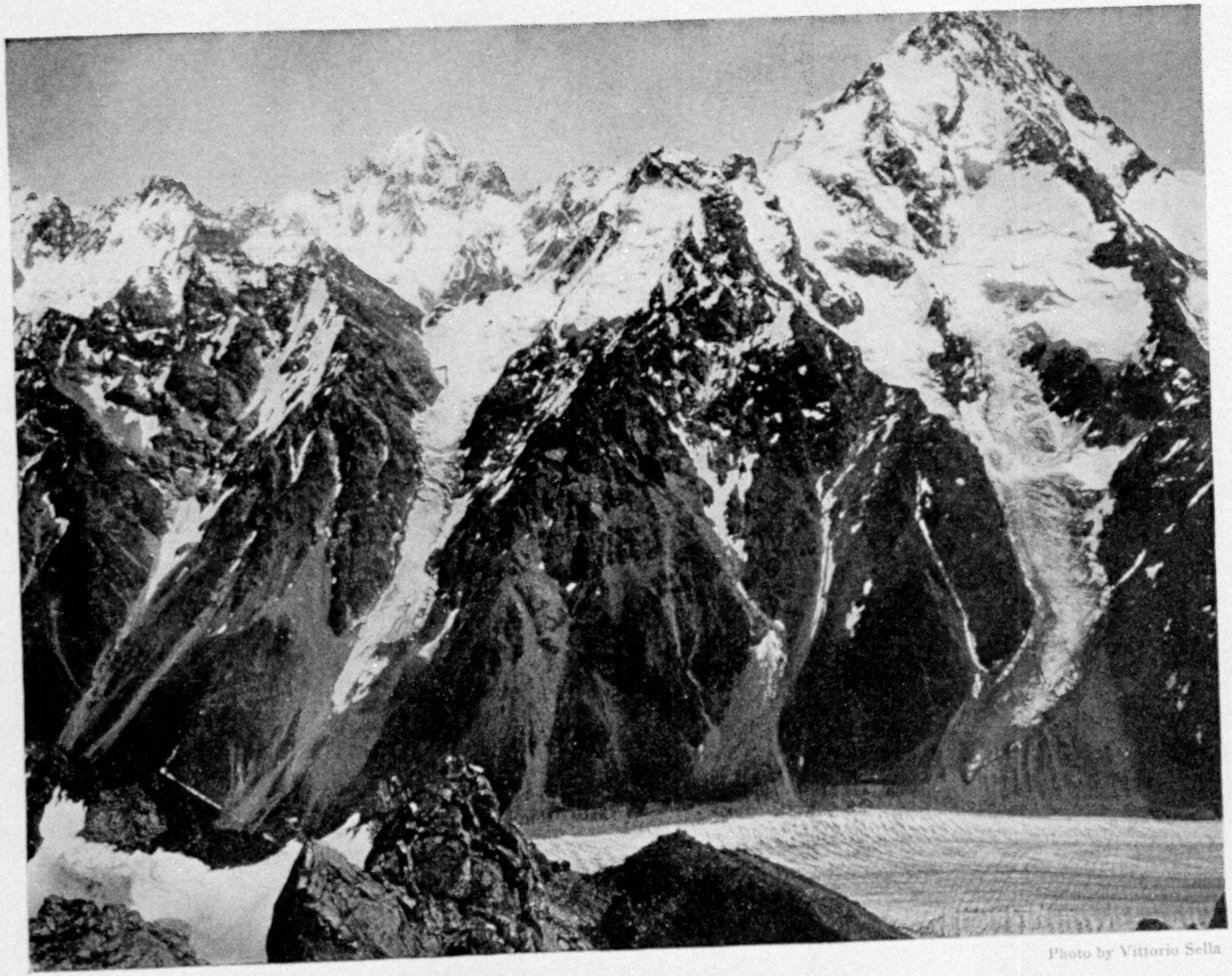

Photo by Vittorio Sella

THE UNBROKEN WALL OF THE CAUCASUS

"Its entire length, measured along the crest of the central ridge, does not much exceed 700 miles; but for that distance it is literally one unbroken wall of rock, never falling below 8,000 feet and rising in places to heights of 16,000 and 18,000 feet, crowned with glaciers and eternal snow" (see text, page 1087).

methods which were apparently survivals from the early ages of the world's history.

HABITS AND CUSTOMS SURVIVING FROM EARLY CHAPTERS OF THE WORLD'S HISTORY

In the houses where we slept, the portholes which served as windows had neither sashes nor glass. Against some of the doors were nailed the bones and shriveled remains of lopped human hands, the ghastly trophies of battle or blood-revenge. Meals were eaten on the floor from a common dish or kettle, out of which every man took his portion with a sharpened pine splinter or a wooden spoon. Fruit was offered to us on huge brass or copper trays bearing Latin inscriptions in old Gothic letters or verses from the Koran in Arabic. Grain was threshed by driving over it a yoke of oxen attached to a wooden toboggan, whose lower surface was studded with sharp-edged fragments of quartz.

Men accused of crimes were tried by the ordeal or cleared themselves by compurgation. Homicide was restrained only by the laws of the vendetta. A murderer who wished to make peace with his blood-seekers let his hair grow long, put on a white shroud, went with uncovered head to the relatives of the man whom he had killed, presented them with an unsheathed dagger, holding it by the point, and took the desperate chance of life or death. Forgiven murderers became members, by adoption, of the clans to which their victims had belonged.

A man who had a quarrel with his neighbor wrapped himself in a burial shroud and went in person to settle it, carrying in his hand money to pay a priest for reading prayers over a grave; and the dead were lamented with keening, borne to the village cemetery on ladders, and buried with Arabic prayers in their hand, to be given to the angel who should awaken them on the morning of the resurrection.

In short, the men whose acquaintance we made and whose customs we observed in the *aouls* of central and southern Daghestan lived, acted, and died in much the same way perhaps that our own ancestors lived, acted, and died on the plains of Asia or in the forests of Europe in the forgotten years of the remote past.

ON ONE OF THE GABLES OF THE WORLD'S ROOF

On the 3d of October we entered the high trough between the snowy range and the main range, spent the night in the Daghestan village of Bezheeta, at an elevation of 8,000 or 9,000 feet, and about the middle of the next forenoon began the ascent of the gigantic ridge which forms the backbone of the eastern Caucasus and which separates Daghestan from the valley of Georgia.

We started up the mountain in zigzags, following as nearly as possible the track of a small but rapid stream which came rushing down from a rudimentary glacier 1,000 feet above. Old, hardened snow soon made its appearance, the noise of the torrent ceased, and we entered a gray canopy of clouds, which hid everything from sight except the *névé* over which we rode. For an hour or two we climbed steadily upward, enveloped constantly in clouds and hearing nothing but the crunching of snow under our horses' feet.

Suddenly a cold, piercing wind began to blow in our faces. We had reached the summit, 12,000 feet above the sea, and the wind came from the other side of the range. The clouds, however, still hid everything from sight, and the mist, wind, and low temperature made it uncomfortable to stay on the summit long.

A VISION OF THE PLAIN

Just before we began our descent, however, the gray ocean of vapor suddenly opened beneath us, and there, 12,000 feet below, lay the beautiful semi-tropical valley of Georgia, like a huge colored map framed in clouds. Scores of glittering streams, like shining silver threads, lay stretched across the broad expanse of meadow land which sloped away from the base of the mountains; orchards, vineyards, and olive groves diversified it here and there with patches of darker green, and far away in the

XUM

Photo by Vittorio Sella

IN THE RUSSIAN SWITZERLAND

"It [the Caucasus] is in some respects one of the most remarkable mountain masses in existence. Its peaks outrank those of Switzerland, both in height and in rugged grandeur of outline; its glaciers, ice-falls, and avalanches are all upon the most gigantic scale; the diversity of its climates is only paralleled by the diversity of the races that inhabit it" (see text, page 1087).

Photo by Vittorio Sella

THE VILLAGE OF MUJAL, CENTRAL CAUCASUS

This village, situated in one of the broad open valleys of the central Caucasus, presents a very different appearance to the villages of Daghestan. There the village closely resembles a New Mexican pueblo; here it looks like a collection of medieval castles; there the houses cling in compact masses to the steep sides of the mountains; here they are set, widely spaced, in the rich pasture lands at the foot of the mountain slopes.

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Photo from P. G. Gates

A TYPICAL HOPI PUEBLO

This Indian pueblo, perched on the top of a mesa in Arizona, not far from the town of Oraibi, bears an extraordinary resemblance to the mountain villages of Daghestan, both in location and architecture. The close similarity can best be appreciated by comparing this picture with those on pages 1116, 1118, and 1119.

distance loomed the purple, snow-clad peaks of Armenia.

The contrast between the scenery on the northern side of the range and that on the southern side was most extraordinary. Behind us rose the high ridges and terraced mesas of Daghestan, already covered with a white mantle of snow; before us lay the green fertile valleys of Georgia and the Alazan, smiling under a midsummer sun. Behind us, Siberia; before us, Italy, and around us the snow and the clouds of the high Alps.

The view from the crest of the great range, as the clouds gradually blew away, was one of almost unimaginable extent, diversity, and grandeur; but we were so thoroughly chilled that we did not give much time to enjoyment of it, and after drinking a cup of Kakhetian wine and eating a cake or two of unleavened Daghestan bread, we started down the long zigzag trail which led into the valley of the Alazan.

At noon we stood 12,000 feet above the sea, on the old, hardened snow which covered the crest of the main range. At 8 o'clock in the evening we were riding through dark olive orchards and vineyards redolent with the odor of ripening grapes, listening to the monotonous croaking of frogs, and breathing the warm fragrant air of a night in June.

In eight hours we had passed from midwinter to midsummer, and the snowy crest of the main range showed faintly, like a dim streak of white, against the dark blue, star-spangled, trans-Caucasian sky. Just before midnight we reached Prince Djordjadzi's estate and, dismounting from our tired horses, entered the courtyard gate of his spacious, white-walled mansion, in the far-famed valley of the Alazan.

THE MYSTERIOUS LIFE OF THE COMMON EEL

By Hugh M. Smith

United States Commissioner of Fish and Fisheries

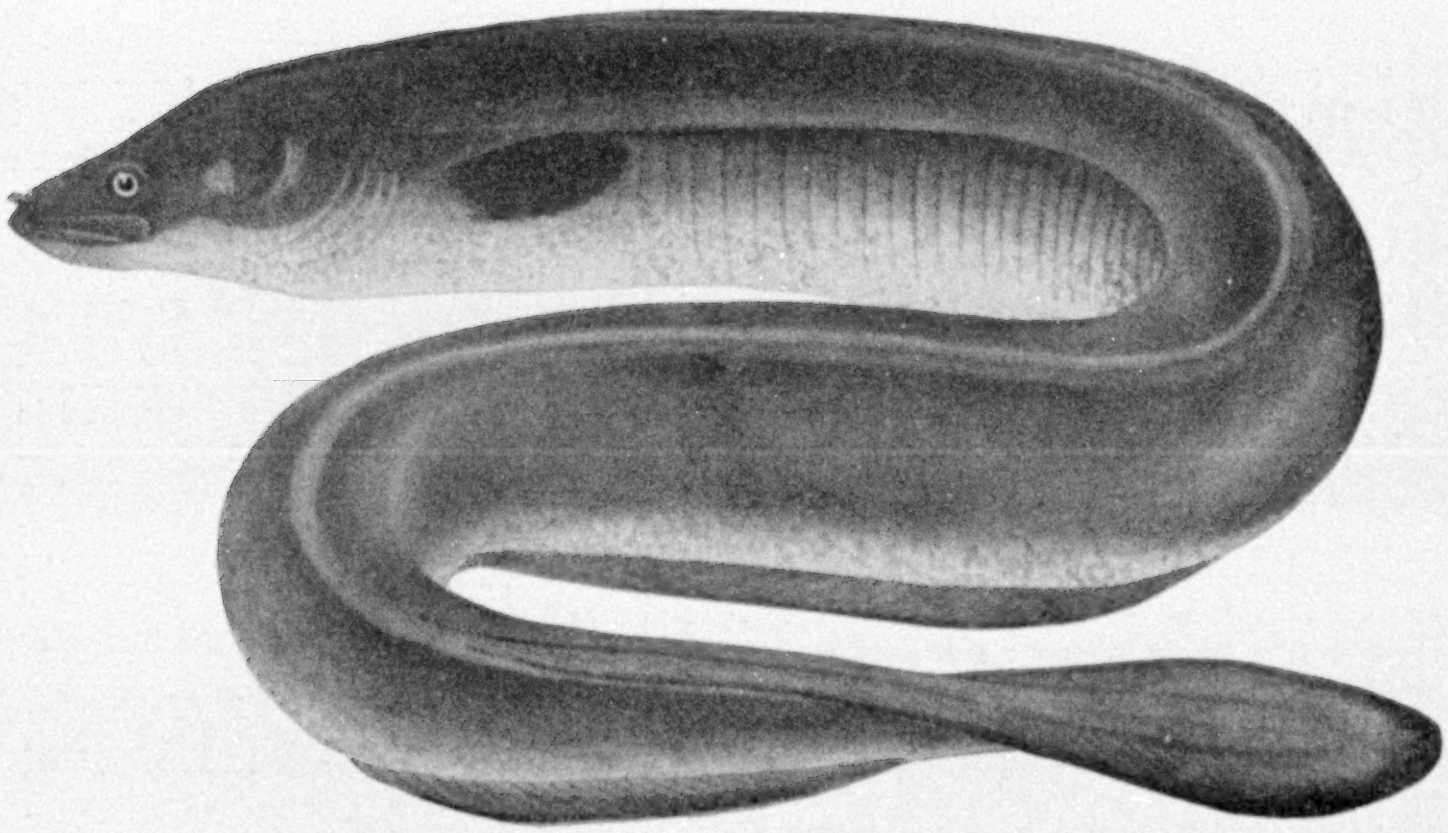
Author of "Oysters: the World's Most Valuable Water Crop," "Our Fish Immigrants," "America's Most Valuable Fishes," "The Pearl Fisheries of Ceylon," "King Herring," "Some Great Fishes of the Sea," "Brittany, the Land of the Sardine," etc., in the National Geographic Magazine.

ONE of the most familiar, but least known, fishes of the United States is the common eel. It reaches the height of its development on the Atlantic seaboard and in the rivers discharging thereon, but is found also in the Gulf of Mexico, and thence to northern Brazil, in the Mississippi River and tributaries, and in the Great Lakes. A very closely related species abounds in western Europe and the Mediterranean Sea, and extends its range to the Azores and Canaries.*

In recent years much attention has been devoted to the study of the eel, and only a few phases of its life now remain obscure. The established facts are in some respects more extraordinary than the fabulous views of ancient and medieval writers and the extravagant hypotheses of some modern investigators. When the complete life of the eel is cleared up, it will doubtless be shown to have a more remarkable history than any other fish possesses.

In the United States the eel, although a valuable food fish, is not nearly so important as in western Europe, particularly in Denmark, Germany, and Sweden,

* Considerable doubt formerly existed as to the relationship of the eels of the two sides of the North Atlantic Ocean. It is now known that they are entirely distinct, one constant point of difference being the possession by the American eel of about seven less vertebræ than the European fish has.



THE COMMON EEL, *Anguilla chrysypa rafinesque*

The common eel, though a most familiar fish, has been surrounded in the past with a wealth of legend and fiction as regards its origin. Now that science has begun to find out how this fish really comes into the world, the story proves to be actually more wonderful than any of the fables previously related (see pages 1141 and 1142).

where it is one of the most esteemed of food fish. The eel catch in all North America is insignificant by comparison with that of Denmark, the smallest coastwise country of Europe. It is therefore not strange that the eel should have received special attention from the biologists and fishery authorities of Scandinavia and Germany, and that recent extension of knowledge of this fish should have come largely from that source.

Study of the eel is not of purely scientific interest, but has a decidedly practical bearing, for no intelligent consideration of eel legislation and conservation is possible without a knowledge of the cardinal points in the eel's life, especially its reproduction, migration, and growth.

SOME EEL MYTHS

While the remarkable habits of the eel remained unknown or defied the elucidation of the early observers, imagination ran riot, fiction and fable were accepted as fact, and the eel was loaded with an incubus of impossible attributes.

The most extraordinary theories and beliefs have been entertained regarding the spawning habits of the eel, from the time of Aristotle to the present day. The cause of all the speculations and misconceptions has been the fact that eels do not spawn within the confines of the continents or where human observation is possible. We may therefore sympathize with the older writers, including Aristotle, Pliny, Athenæus, and Oppian, among the ancients, and Rondelet and Gessner, among the writers of the middle ages, who make no account for the generation of eels in any other way than by spontaneous origin from mud, slime, dew, horsehair, skins of old eels, etc.

One of the most noteworthy writers of eel fiction was Albertus Magnus (1206-1280), who was a student of Aristotle and a teacher of Aquinas, and was the most learned and widely read man of his time. An edition of his works, published at Frankfort in 1545, contains the statement that "the eel comes out of the water in the night-time into the fields, where he can find pease, beans, or lentils."

Sustained by this reputable authority, the eel began to frequent the literary fields of many subsequent writers, in search of vegetable and other land prod-

ucts; and the belief is current among the peasants in parts of Germany today that the eel makes excursions on dry land, more particularly on the approach of a storm. This view, as either an independent or an imported creation, is likewise held in various parts of America.

I was once obliged to combat, in a reputable sporting journal, the contention of an estimable angler that he had demonstrated that the common eel is the male and the lamprey (which is not an eel, not even a fish) is the female of one and the same species. That was some years ago, and popular knowledge of the eel has since then increased; but if a person consults the recent files of sporting magazines and natural history periodicals of a certain kind, he will see how the old errors about the eel persist. As late as the year 1913 it remained for a writer in one of the best of our outing magazines to report that the eel, when a year old, ascends Niagara Falls and thus gains access to the upper lakes.

THE EXTRAORDINARY CHANGES OF ITS LIFE

In the fall the eels which have been living in the fresh waters and have attained their full growth undergo peculiar changes. The eyes in the males become nearly twice the normal size, and both sexes lose their dirty yellow-green color and become silvery. Such eels migrate downstream, traveling mostly at night, and eventually reach the sea, where all trace of them is lost. Their behavior in the sea, the depths at which they swim, their rate of travel, and whether in scattered bodies or in compact schools, are some of the still obscure phases in the eel's life.

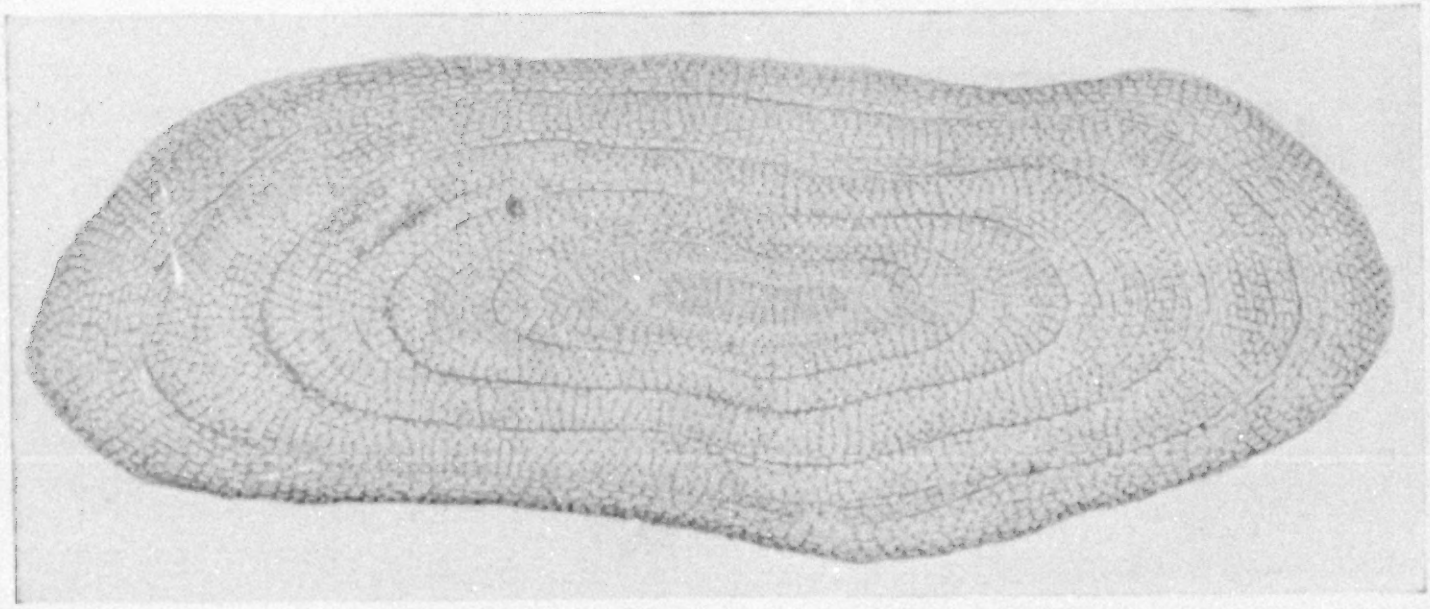
The next evidence of these eels is met with on the high seas, far from land, in the form of their young progeny. The larval eel is such a very different-looking creature from the adult that no person not properly instructed could by any possibility recognize it. It is compressed laterally to the thinness of a visiting card; it has a small head, large eyes, formidable, but apparently non-functional, teeth that project forward and laterally; and the body is transparent throughout, the fish being practically invisible except for its glistening black eyes.

The larval eel, known as the *leptocephalus,* undergoes an extraordinary metamorphosis. It remains at sea for about one year, during which time it attains a length of three inches. Its larval state has then reached its climax, and in its subsequent growth for a time the eel actually becomes smaller! There is a gradual change in form from the ribbon-like to the cylindrical, a shortening of the body and of the intestine, and a gradual assumption of the eel-like appearance (see page 1145).

Fresh water has a great attraction for the young eels, and as soon as they reach the coasts, to which they are wafted by currents and winds, they seek fresh-water streams and begin to ascend them. When they first arrive they have little pigment in their skin, but they quickly acquire a brownish color, and by the time they arrive as far upstream as, say, the vicinity of Washington, they have become quite dark.

Eels at the age when they begin their ascent of the streams are called elvers, a name that appears to have originated on the River Severn in England and has spread to all English-speaking countries where eels are known. The upstream movement of the elvers is known as an eel-fare on the Severn, Thames, and other English rivers, and this name also has been transferred to America and other countries. "Fare" is from an Anglo-Saxon verb meaning "to go" or "to travel," and "elver" is a corruption of eel-fare. The migration, coming in late winter or spring, may last for a few days or several weeks in a given stream, and the young, closely skirting the shores, may be in a practically unbroken column during the entire period.

Some eels remain in the lower parts of the streams and move back and forth in the bays and estuaries, and others press on to the headwaters, often surmounting obstructions that would be impassable for other fish, and remain there until full maturity is attained.



SCALE OF AN ADULT FEMALE EEL

The eel was on her way to the sea to spawn when caught in the Potomac River. The age, according to the evidence afforded by the scales, was over eleven years (see page 1144). Enlarged 25 times.

HOW THE EEL IS BORN AND WHERE

The habits of the eel at the time of spawning are entirely unknown. Whether the eggs are laid in deep water, in intermediate depths, or at the surface is as yet only a matter of surmise. It is established, however, that the eggs are deposited outside of the 1,000-meter curve (that is to say, the eggs are never deposited in water less than 1,000 meters deep), and that they hatch at or near the surface, where they are carried by their natural buoyancy.

Up to the present time no eel with ripe eggs has been found, and only one fully mature male has been observed, a specimen 35 centimeters (14 inches) long, recently taken on the coast of Denmark.

From counts and estimates based on immature specimens, it is evident that the eels are the most prolific of all fishes and of all backboned creatures. From 5,000,000 to 10,000,000 eggs are probably produced by the average-sized eels, and 15,000,000 to 20,000,000 must be deposited by the largest examples. A specimen one meter long and weighing 2.6 kilograms, taken in the Potomac River in November, 1912, while migrating to the sea, contained approximately 15,000,000 eggs from 0.23 to 0.37 millimeter in diameter.

All large eels are females, and only females enter conspicuously into the market supplies in either America or Europe. Any eel over 40 centimeters (16 inches) long is likely to be a female and one over 45 centimeters (18 inches) is almost certain to be a female.

All eels found in the headwaters of large streams are females. The males remain in the lower courses of rivers and as a rule do not go above tidewater. One of the most surprising facts in the eel's life is that all individuals of both sexes die after spawning once. No "spent" eels have ever been found; no mature ones have ever been seen coming in from the sea, and, as a matter of fact, no provision is made by nature for the return to the fresh waters of any of the myriads of eels that go down to the sea each year to spawn.

Just what becomes of the eels after spawning is not known. The conger eel, a strictly marine species, undergoes a general degeneration or jellification of its tissues after the spawning act, and it is supposed that the common eel meets with the same fate. The writer once had served to him at an inn on the east coast of Japan a common eel that was peculiar in having a gelatinous consistency throughout. The specimen had been brought in by fishermen operating offshore in deep water, and may have been a spent fish in process of disintegration.

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LARVAL EELS IN THE NORTH ATLANTIC

Larval eels have been collected all the way across the North Atlantic, from 25° to 45° north latitude. Much new material of a very interesting character was obtained in 1910 by Sir John Murray and Dr. Johan Hjort during their notable cruise in the Norwegian government steamer *Michael Sars*. The larval eels, or *leptocephali*, as they are scientifically known, frequent the surface waters, and may be caught in large, fine-meshed tow nets. They possess very feeble swimming powers, and it is evident that their movements are controlled largely by tides and currents. The smallest specimens are found in mid-ocean south of the Azores, which is the spawning ground for the European eel and probably also for the American eel. It is not easy to understand how the American eel, in the course of its metamorphosis, reaches the shores of the United States and Canada, but it is clear that the Gulf Stream carries the European species to the coasts of western Europe. As the coasts of the continents are approached, the larvæ average larger and larger; none are ever found near land that are as small as all of those taken in the Sargasso Sea.

The *leptocephali*, or larval eels, approach the shores of Europe in three great bodies, corresponding with the drift currents from the Gulf Stream; one mass goes to and around the northeast coast of the British Isles, another to the English Channel and Bay of Biscay, another to the region of Gibraltar, and thence into the Mediterranean Sea.

One of the most surprising of the recent discoveries about the eel relates to the Mediterranean. For many years the only knowledge we possessed about the larval shapes of the eel came from that sea. In 1856 a larval fish was described by Dr. Kaup from the Strait of Messina, which for many years was the only place in Europe where such fish were found.

It was forty years later (1895) that the Italian investigators Grassi and Calandruccio identified Kaup's fish as the larval form of the common eel. No eggs and no very young stages of the eel have, however, been discovered in the Mediterranean; and Dr. Schmidt, the well-known Danish investigator, has recently concluded that the common eel does not spawn anywhere in the Mediterranean, and that the entire stock of eels in that sea comes from the Atlantic.

One of the strangest facts about the larval eels is that they take no food. Here is a vertebrate animal, emerging from an egg less than one-twenty-fifth of an inch in diameter, growing to a length of three inches in perhaps a year, buffeted about on the high seas, and drifting over a distance of 1,000 miles or more, and yet during this entire period taking no food whatever, and doubtless incapable of doing so, owing to the unprepared condition of its digestive organs. Similar cases occur in other fishes and among insects and other animals; but there must be few, if any, which afford a parallel to this.

EEL SCALES AND WHAT THEY SHOW

To laymen and fishermen alike the eel is a scaleless creature; to them its smooth, slippery skin gives no evidence of the scales of extraordinary development and interest that are well known to the biologist.

While the scales of an eel are small and inconspicuous compared with those of many other fishes, they may easily be made out, with the unaided eye, by a careful examination of any part of the skin. They may be recognized by their parallel arrangement in small clusters, which in turn are disposed at right angles to one another, so that the entire skin has a minute cross-hatch appearance.

The scale of the eel has come in for a large amount of study in recent years. This study, like that of fishes' scales in general, has thrown much light on the age, growth, and habits of the eel, and has furnished important data that could not have been obtained in any other way.

Eel scales are thin, flat, elongate-elliptical bodies, very different in character from those of any other American fish. They consist of a base surmounted by minute, refractive, elliptical elevations, arranged in regular concentric series.

The scales participate in the growth of

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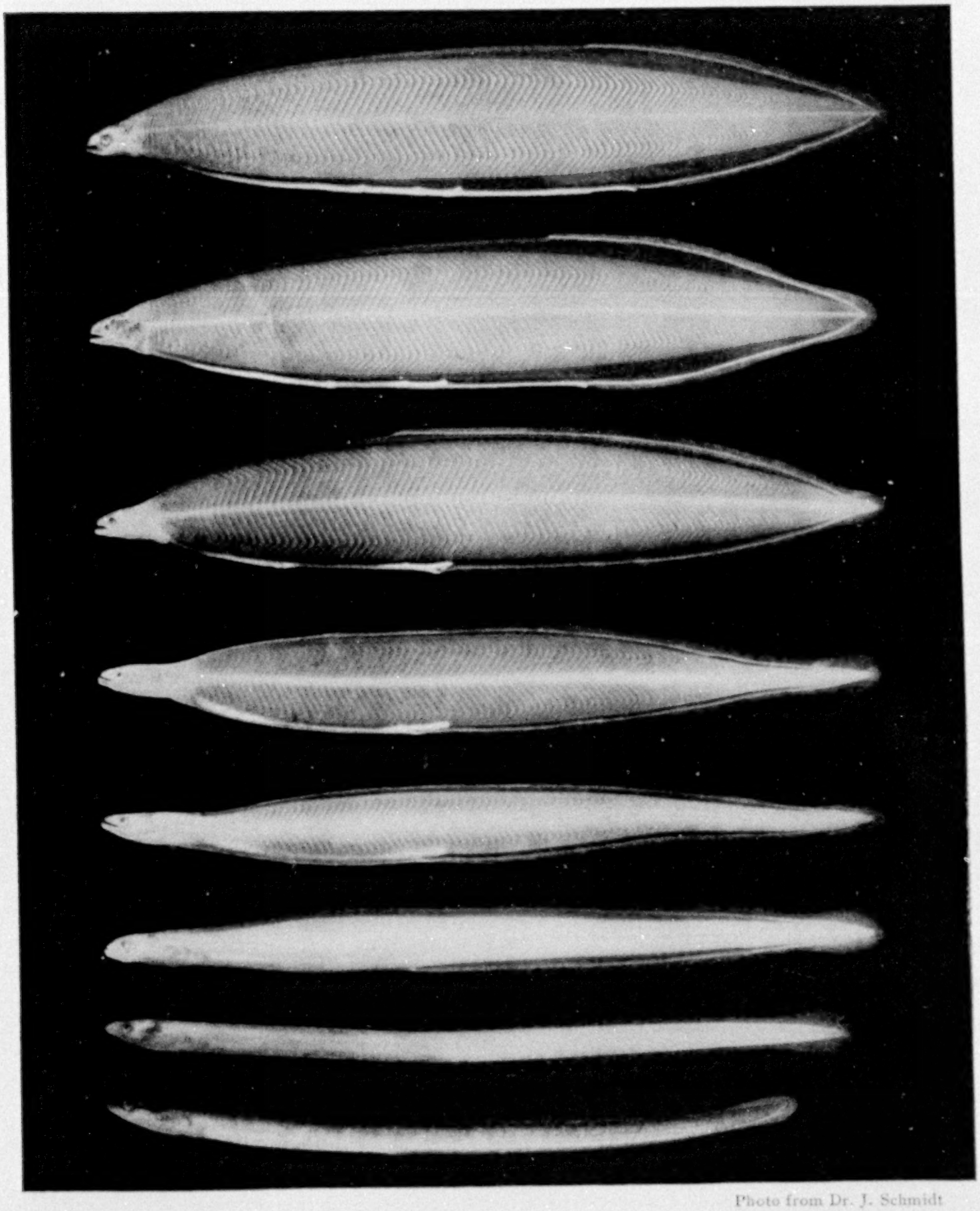


Photo from Dr. J. Schmidt

THE REMARKABLE METAMORPHOSIS OF THE COMMON EEL, FROM THE FULL-GROWN LARVAL EEL (*Leptocephalus*) TO THE ELVER

The top figure is that of a larval eel which has attained its full growth. It is as thin as a visiting card, quite transparent, and about three inches long. It gradually decreases in size and, as time goes on, gets rounder and rounder, till it finally attains the characteristic shape of the eel, changing from what might be termed a pancake into a serpent form. During this period, of about a year in length, it takes no food whatever, yet it drifts from the breeding grounds in mid-Atlantic over 1,000 miles to the entrance of its future fresh-water home (see pages 1142 and 1144).

the fish, and increase in size by accretions of new matter around the margin; these accretions are in concentric zones like the rings of a tree. When the growth of an eel ceases or is reduced, as in winter or during a prolonged fast, there is a corresponding discontinuity or decrease in the deposition of new matter on the margin of the scales, and such periods of arrested growth are permanently marked and enable the student to compute the exact age of eels.

Scales are not normally deposited until eels have passed three years in fresh water; they form first near the middle of the side, and may not appear on the head until two years later. Consequently, in determining the age of any given specimen of eel by its scales, the side scales should be those first deposited, and allowance should be made for the scaleless life (3 years) and the period spent at sea after hatching (1 year).

DESTRUCTIVE HABITS OF THE EEL

However much we may be interested in the extraordinary habits of the eel, and however much we may extol its food value and economic importance, we cannot ignore its injurious relations to other fishes.

The eel is not a fighter and beats a retreat when attacked by fishes of even much smaller size than itself. It is not destructive to fishes in the way that many of our best game and food fishes are, but it preys extensively on small fry.

The principal damage done by the eel, however, is to the spawn of food fishes. This is consumed in great quantities, especially at night. The shad and herring are among the principal sufferers. The eel, like the human species, has acquired a taste for shad roe, and in the exercise of this propensity it at times comes into serious conflict with the fishermen of some of the Atlantic rivers.

Many years ago it was noted by Prof. Spencer F. Baird, Commissioner of Fisheries, that the eel is an undesirable inhabitant of streams in which fish are caught by means of gill nets; and that there is a large destruction of shad and herring in the Susquehanna and other streams to the southward, where it is a not infrequent experience of fishermen to find, when their nets are hauled in, that the greater part of the catch consists simply of heads and backbones, the remainder having been devoured by eels in a short time, while spawning shad caught in gill nets are sometimes found completely emptied of roe.

A curious experience, referred to by Professor Baird and noted also by more recent observers, is for a fisherman to find a shad, apparently in full roe, to contain an eel or several eels which have entered the vent, destroyed the eggs, and ensconced themselves in the abdominal cavity of the shad.

OUR ARMY VERSUS A BACILLUS

By Alton G. Grinnell

IN ALL the history of human endeavor nothing compels greater admiration than the devotion of a lifetime to the conquest of a world-wide disease. It is seldom, if ever, given to one individual to search out single-handed the cause of the disease, demonstrate to humanity how it is communicated, and show how it may be prevented. In such a monumental achievement the ultimate success is usually due to the researches and experiments of many men, all of whom have been actuated by an ambition to relieve human beings of unnecessary suffering.

The details of the first act of such a drama are usually obscure, and even if known to the public are uninteresting at the time because of their technical character and apparent lack of connection with human ills.

But when the years of experimentation have passed and the marvelous thing is demonstrated, with all the world the stage, men wonder at the transformation.

Typhoid fever, which before 1908 had

been fought with every weapon known to modern science and still lurked in every community, is now put to rout in open combat by the aid of its own dead bacteria. The illuminating light of discovery makes possible the immunization of an army of 85,000 men against a disease which is more prevalent in this country than in most civilized countries and causes a yearly loss of something like $350,000,000 and untold suffering—a disease which has been the scourge of our army and has killed and maimed more than powder and shot. This same disease was directly responsible for an outlay of $20,000,000 in the British South African war, and has been the cause of great suffering and financial loss for many years among all peoples in every climate, in peace and in war.

A SERIES OF DISCOVERIES

Scientists of many nations have contributed to the campaign for the eradication of typhoid, but to the United States Army belongs the credit for the first practical demonstration on a large scale. From the discovery of the germ to this remarkable demonstration was a span of 31 years, wherein the following important contributions were made:

(1) Eberth, a German bacteriologist and anatomist, discovered the typhoid germ in the year 1880. It belongs to that group of bacteria which live on live animal and vegetable matter and is known as a parasite. Twelve thousand of them placed end to end would measure only one inch. They multiply very rapidly under favorable conditions, dividing into two about every 40 minutes, which in the course of 24 hours would result in the production of millions but for the lack of sufficient food.

They cannot develop in intermediary hosts, such as fleas, mosquitoes, etc., like certain other micro-organisms; but they can exist for several months in various substances, and thus be transmitted from one person to another. Fortunately, the sunlight destroys them in from four to eight hours.

After being taken into the mouth in food or drink or on the fingers, the germ finds its way into the intestines, whence it is carried by the blood to all parts of the body and produces a poison known as the typhoid toxin, which affects the tissues and organs in such a manner as to cause the symptoms of the disease.

(2) Dr. Ehrlich, a German scientist, advanced the theory that besides the poisonous toxin another substance is formed in the body, as the result of the invasion by the typhoid bacilli or other germ, which is antagonistic to it and is known as its anti-toxin.

(3) In 1884 the great Russian scientist Metchnikoff advanced the theory that the function of the microscopic cells, the white blood-corpuscles, which are found in great numbers in all parts of the body, is to act as policemen of the blood, and that it is due to their eternal vigilance that disease germs in the blood, such as the typhoid bacilli, are destroyed. He calls these microbe-eaters "phagocytes." Certain diseases, such as typhoid fever, smallpox, plague, etc., practically never attack the same individual twice, because these defenders have become so active (energized) in their efforts to overcome the germs during the first attack that they remain in this active state indefinitely.

WRIGHT INTRODUCES PREVENTATIVE VACCINE

(4) As the result of the work of Sir Almoth Wright, an Irishman, the two theories above were united to explain the resistance of the body to disease. He showed that the substance mentioned by Ehrlich first attacks and sensitizes the foreign organisms in the body, and that the white corpuscles then absorb and carry them away.

A most remarkable exhibition of this functioning is now given to the public by means of moving pictures, a film having been prepared by a French scientist and exhibited by MM. Pathé Frères which "shows the white corpuscles of the blood gradually altering their shape and position and fulfilling one of their best-known functions as scavengers and absorbing such abnormal substances as microbes, disease-cells, and granules of inert matter."

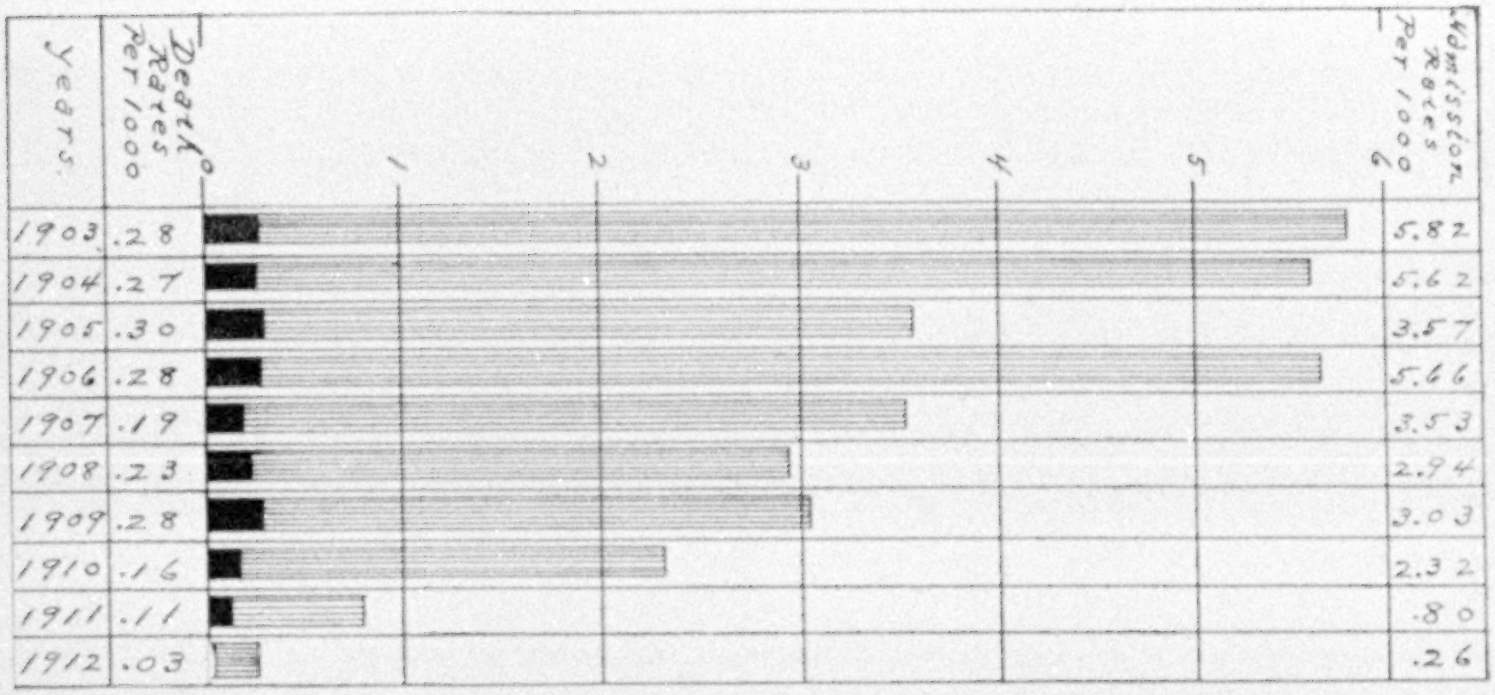


DIAGRAM SHOWING PERCENTAGE OF TYPHOID FEVER CASES AND DEATHS IN THE UNITED STATES ARMY, 1903-1912

Anti-typhoid vaccination, begun voluntarily in 1909, was made compulsory in 1911. Up to the end of September, 1913, there had not been a single case of typhoid fever in the United States Army in 1913 (see page 1150).

These facts being known to science, experiments were made to produce anti-typhoid vaccines, which when injected into the blood would have in a mild degree the same effect upon the body tissues as the disease germs.

(5) The French scientist Pasteur made the first successful experiments, in the immunization of chickens against cholera, which led up to the immunization of man against typhoid. His experiments were conducted solely upon animals. Others continued his researches.

(6) Later Sir Almoth Wright demonstrated that the dead bacteria of typhoid could be made into a preventive vaccine, and in 1897 he published a report of the first 20 anti-typhoid inoculations on human beings.

HOW THE WORK IN AMERICA BEGAN

(7) The scene now shifted to the United States. One autumn afternoon in the year 1908 there assembled in the office of the Surgeon General of the Army a group of distinguished physicians and surgeons:

Brig. Gen. R. M. O'Reilly, Surgeon General; Drs. Victor C. Vaughan, William T. Councilman, John H. Musser, Alexander Lambert, Simon Flexner, William S. Thayer, and Capt. Frederick F. Russell, Medical Corps, U. S. A.

With the exception of the Surgeon General and Capt. F. F. Russell, this army board was made up of members of the "Reserve Corps."

The Surgeon General addressed the scientists present, stating why they had been brought together, and set forth briefly the history of typhoid in the United States Army up to that time. Had we been present we would have learned that typhoid fever exacted a toll in the northern army during the Civil War of 80,000 cases, and was the cause of not less than *86 per cent of the total mortality* of the American Army in the Spanish War of 1898, there having been 20,738 cases, with 1,580 deaths, among a total of 107,973 men.

The lessons of the latter war and subsequent investigations had made possible many advances in sanitation, and the medical department of the army was bending every effort toward the eradication of the disease. The number of cases per year had finally been forced down to about 300 in the army in the United States, but the ever-present "carrier" (an individual who is apparently not sick of the disease, but still harbors the germs in his system and is capable of imparting them in virulent form to others) was elusive; also typhoid was flourishing quite generally in the civil

population of the United States. In this country the *Bacillus Typhosus* was attacking a half million people every year, and 35,000 to 40,000 died of the disease. The utmost endeavors of the health departments were inadequate to eradicate it.

The Surgeon General now called for the report of Captain Russell, who had spent three months in Europe, by order of the Secretary of War, studying the method of immunization used by Sir Almoth Wright. It set forth with scientific accuracy the details of typhoid vaccination as practiced abroad, and stated that although the measure had not met with universal favor it had been reasonably successful, and recommended its adoption experimentally in our army among those who would volunteer.

TYPHOID VACCINATION INTRODUCED IN THE U. S. ARMY

After some discussion, the board unanimously recommended the adoption of anti-typhoid vaccination in the army as a voluntary measure. Backed by the recommendation of these distinguished gentlemen and the authority of the Secretary of War, the Surgeon General took immediate steps to start experimental vaccination and placed Captain (now Major) Russell in charge of the work.

Within a couple of months he had developed an improved technique, so that the reactions which had been somewhat severe before were now quite mild. All the medical officers, their families, many commanding officers, and the Hospital Corps immediately submitted to this procedure, in order to set a good example, and the volunteers came forward from the regular army in such goodly numbers as to reflect credit upon the service.

During 1909 and 1910 about 18,000 men were vaccinated. The results were so good that upon the mobilization of the troops on the Texas border in 1911 the Secretary of War ordered the compulsory vaccination of all the troops in the field—the first time in the history of anti-typhoid vaccination that it had been made compulsory; the first test on a large scale of this method of individual protection against the disease which had been the terror of our army camps. The details of this crucial test are imperative to a proper comprehension of the immense value of anti-typhoid vaccination as a prevention against the disease. In an article entitled "The Sanitary Record of the Maneuver Division," Col. J. R. Kean, in charge of the Sanitary and Statistical Division of the Surgeon General's office, states as follows:

"The immense advance in camp sanitation, and particularly the value of this protective measure, can be estimated by comparing the typhoid incidence of this camp with that of the 2d Division, 7th Army Corps, which was organized at Jacksonville, Florida, about June 1, 1898, and remained there in camp until October, some of the regiments leaving in September. This division was not conspicuously unfortunate in its typhoid record for that time and is selected because of the close similarity of its conditions of service to those of the Maneuver Division. The two divisions were encamped in nearly the same latitude and for about the same time; each had a good camp site and an artesian water supply of unimpeachable purity. While the period in camp of the 2d Division, 7th Army Corps, was later in the year, the number of men involved is larger for the Maneuver Division.

SOME VERY REMARKABLE FIGURES

The following table shows the typhoid incidence in the two camps:

Mortality and morbidity from typhoid fever in the 2d Division, 7th Army Corps, at Jacksonville, Florida (June-October, 1898):

Mean strength	10,759
Cases of typhoid, certain and probable	2,693
Deaths from typhoid	258
Deaths from all diseases	281

Compare these figures with those for the Maneuver Division, San Antonio, Texas, March 10 to July 11, 1911:

Mean strength	12,801
Cases of typhoid, certain and probable	1
Deaths from typhoid	0
Deaths from all diseases	11

"This is the more remarkable when it is stated that the average typhoid rate at the army posts in the United States during the same period was 34 per 1,000;

in other words, the health of these soldiers in camp, sometimes living in deep mud and at other times in clouds of dust and under a semi-tropical sun, was better than in barracks surrounded by the comforts and sanitary appliances of post life."

Further proof of the many opportunities which the soldiers had to contract typhoid is given in Major Russell's report:

"There is no doubt but that the hygiene and health of the men received almost ideal care; the difficulty was, however, that the men were not confined to camp, but had liberty and opportunity to visit the neighboring cities of San Antonio and Galveston. Thousands spent more or less time in these cities, where they dined and lunched, and drank and slept; in fact, became, for the time being, a part of the community.

"In Galveston, especially, where a ten minutes' ride carried one from the camp to the heart of the city, the number of men visiting town was large. The soldier always has a good appetite, and he drank and ate everywhere—in good restaurants and bad, in the numerous lunch-wagons, and at street-corner stands. Fruits and pies and sweets in enormous quantities were purchased from hucksters lined up along the camp boundaries; they even invaded the company streets, carrying their various sorts of indigestible and infectious products from tent to tent. The best kind of camp sanitation could not keep down typhoid in the presence of all these possible chances of infection, if typhoid existed to any extent among the local population.

"During this period of four months there were reported to the health office 49 cases of typhoid, with 19 deaths, among the civil population of the city of San Antonio, and in Galveston 192 cases were recorded during the same period. These two cities can therefore serve as controls and indicate what might have happened to our troops in the absence of vaccination.

AN IMMUNIZED ARMY

"Aside from the sources of infection in the adjoining cities, we must believe that the men were also exposed to the influence of an unknown number of chronic bacillus-carriers among our own men. There is every reason to believe that among 18,000 men there were one or more carriers in each regiment, yet they spread no disease, and one of the most important conclusions to be drawn from our recent experience is that *in vaccination we have the only effective protection against the elusive carrier.*"

Complete confidence in vaccination was established by this epoch-making achievement, and, upon the recommendation of the Surgeon General, the Secretary of War ordered, on September 30, 1911, the compulsory vaccination of every person in the army under 45 years of age, and of all recruits. This was carried out as promptly as possible, and, as the result, the United States has today an "immunized" army, *not a single case of typhoid having thus far been reported among the troops in this country during 1913.* This record, compared with that of any year previous to the beginning of vaccination, seems little short of miraculous.

In no other army is anti-typhoid vaccination mandatory, and no other is entirely immunized against the disease. Our navy soon followed the precedent established by the army, and it is today immunized with vaccine prepared in the laboratory of the Army Medical School.

SOME FIGURES THAT PROVE

In a paper recently read before the Congress of American Physicians and Surgeons in Washington, Major Russell included a table showing the incidence of typhoid in the army in the United States during the period 1903-1913. These statistics were gathered with the utmost accuracy and tell the story in a nutshell:

Typhoid Fever, U. S. Army, in the United States

	Cases
Five years prior to 1908 (average per year)	160
Two years after vaccination had begun (year 1911)	44
Three years after vaccination had begun (year 1912)	18
First nine months of 1913 (latest figures available)	0

Since 1908 a prodigious amount of work has been accomplished. The vari-

ARMY SURGEON VACCINATING NEW RECRUIT AGAINST TYPHOID FEVER

ous steps in the production of each dose of vaccine have been as carefully regulated and supervised as though it was to be used upon the President of the United States. Before leaving the laboratory, it is tested upon guinea pigs, and the statistics above quoted show the results of this painstaking care. Large quantities have been furnished to the various government departments, to the militia, and to a number of civil institutions.

As soon as its success was assured the larger drug firms of the country sent representatives to Washington to learn the formula and to study the process of manufacture. The same vaccine is now prepared by these firms and sold to the medical profession of the country at a reasonable rate.

Regarding the act of vaccination itself, an authority states:

"It is quite simple, consisting merely in the subcutaneous administration, with a hypodermic syringe, of a small quantity of the opalescent prophylactic fluid. The syringe is sterilized by boiling, the skin is prepared by painting a place on the arm the size of a quarter, and the immunization is completed by the administration of 3 doses—the first containing 7½ drops and the second and third, which are given 10 and 20 days later, 15 drops each. The site of inoculation becomes somewhat red and tender for a day or two, but there is no sore and no scar as in vaccination against smallpox.

"In a small percentage of cases, less than five, there is some headache and prostration, but it soon disappears, rarely lasting more than 24 or at the most 48 hours. In this connection it is necessary to remember that we vaccinate none but the healthy."

The progressive health department of New York city decided to use the typhoid prophylactic as soon as its success was assured by the War Department, and it is every day being more generally used throughout the country among those who come in contact with the disease or are traveling in areas known to be infected. Miners, campers, contractors, and all who are removed from the safeguards of sanitation in a modern

community find it the surest and most convenient means of protection.

WHAT HAPPENED IN THE RECLAMATION SERVICE

The United States Reclamation Service decided to use the typhoid prophylactic early in the year among its field force, which is scattered over a large area in the West. It was not made compulsory, but circulars were sent to the various camps describing the treatment and the results obtained in the army. One of the circulars contained the following ingenious pronouncement:

Typhoid fever can be prevented.
You can aid by being vaccinated.
Prevention beats the physician and undertaker.
Healthy persons may have typhoid tomorrow.
Only those vaccinated or who have had typhoid are immune.
Immunity lasts three years.
Don't hesitate. Volunteer today.

Over 500 persons volunteered for the treatment. Shortly after this an epidemic of typhoid fever broke out in the town of Malta, Montana, most of the cases developing in a hotel, where four of the Reclamation Service men were taking their meals. Of these four one had refused to be vaccinated, one had had typhoid fever, and two were immunized by vaccination. The unvaccinated man contracted a severe case of the disease, the other three escaping. The sequel was that the townspeople made arrangements to secure a supply of the vaccine.

The recent illness from typhoid of the third baseman of the Washington baseball team (which resulted, some assert, in the loss of a pennant) calls attention to the importance of immunizing all professional baseball players. The vaccination of all school children is especially recommended, as they bear the treatment rather better than adults.

SOME PROPER PRECAUTIONS

As the typhoid bacillus can live but a limited time in water, soil, and other substances, it is obvious that if new pollution is not added from time to time epidemics will be prevented. The general use of the prophylactic will, probably, extinguish the disease, since the vaccination of an entire community absolutely prevents the "carriers" and all others from giving off the typhoid bacilli, and the focus from which new infection would ordinarily radiate is eliminated.

XUM

A BOYS' SCHOOL IN SIBERIA

The pupils in this school are all Tatars and members of the Bouriat tribe; in religion they are Buddhists. The national costume, which the Bouriats have preserved very jealously, consists of a robe shaped not unlike a dressing-gown and usually lined with fur; it reaches to the ankles, and on the right side is embellished with a curious triangular decoration of a different color to the rest of the robe. The men, boys, and unmarried girls have sleeves of the same material as the robe, but for the married women the sleeves are always of a different color or material. The Bouriats are an intensely conservative tribe and view with suspicion any reforms the Russians attempt to introduce.

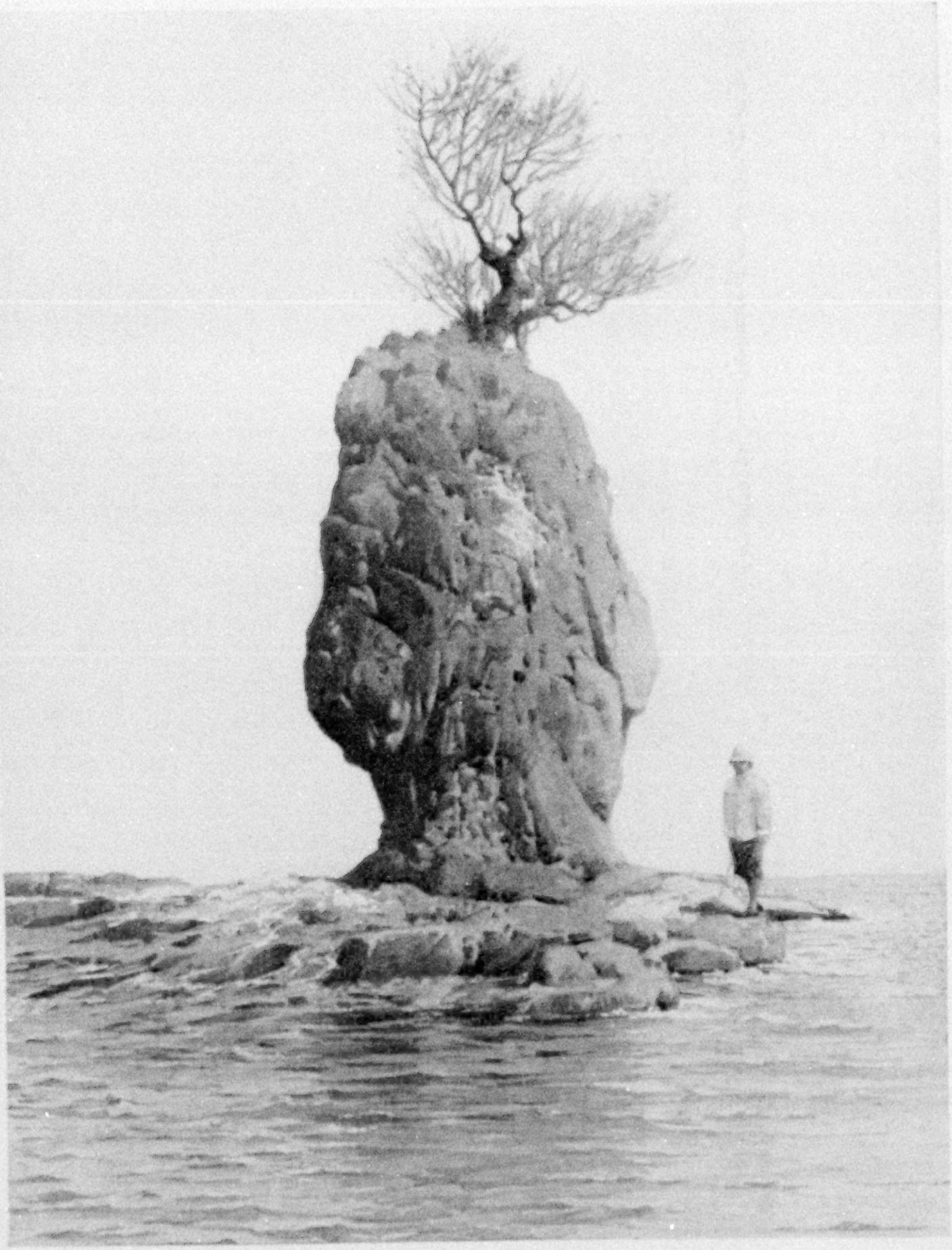
IN THE MARKET OF HA-NOI

Ha-noi is the capital of Tonkin and the seat of the governor of French Indo-China. Its inhabitants are mainly Annamese, but its trade is in the hands of Chinese and Europeans, and rice, sugar, pepper, and silk are exported in considerable quantities. The native market is a picturesque place, and the quaint costumes, especially the enormous hats worn by both men and women, add variety to the scene. As in other native markets the world over, there is no lack of children.

XUM

A GROUP OF LOLO WOMEN AND GIRLS

This group of Lolo women was taken on the borders of China and Tibet. The Lolos are divided into the Black Lolos and the White Lolos, but the terms have nothing to do with the skin of the people bearing them. The White Lolos are those who live on the plains and coasts of Yunnan, while the Blacks are those who inhabit the mountains of the Tibetan border. Both divisions of the Lolos have found the rule of the Chinese by no means to their liking, and, being the original inhabitants of Yunnan, have resisted to the best of their ability. The people of the coast and the plains, being brought into closer contact with the Chinese than their brethren in the mountains, have gradually accepted Chinese civilization customs, but the Black Lolos of the mountains have offered, and still offer, stubborn opposition. Hence the Chinese call them Black.



THE "ROCK OF THE SAIL"

This rock is situated in the Wallis Archipelago, a group of small islands under French control, lying to the northeast of the Fiji Islands. The rock from a distance has the appearance of a sail of a bark that is running before the wind, and the small tree growing at the top completes the illusion of a mast, the smaller branches being invisible a little way off. Owing to its curious shape, the rock is a source of danger to mariners and is marked on all maps and fully described in nautical handbooks.

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Campbells' OX TAIL SOUP

It is made from selected meaty ox tails prepared with utmost nicety and care. The sliced joints are combined with carrots, turnips, barley, celery and herbs in a rich tomato purée which is flavored with dry Spanish sherry of our own importation.

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And cried, "there's
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Just look, I'll hook
Two cases more
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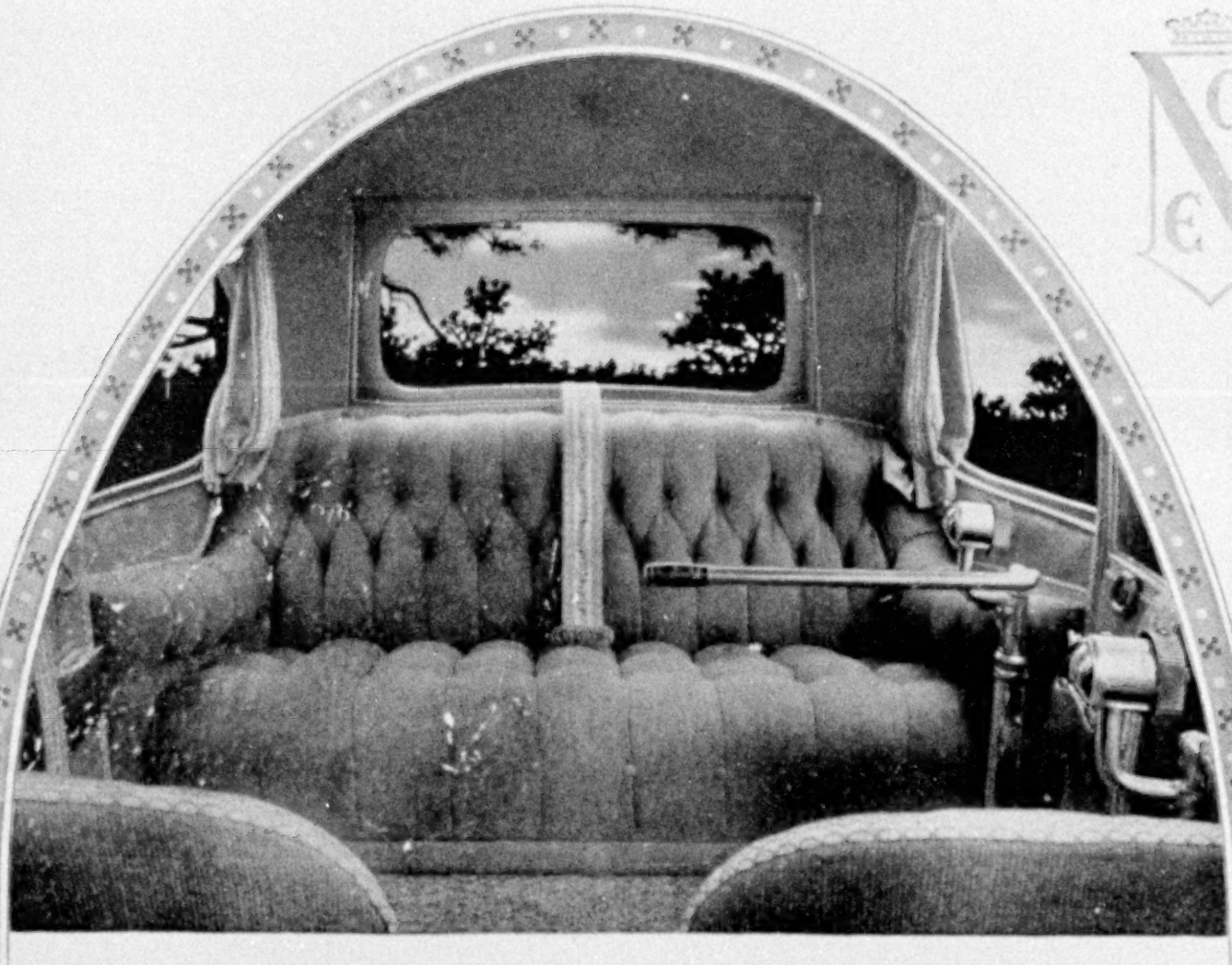
Chicken Gumbo(Okra)	Mutton Broth	Vegetable
Clam Bouillon	Ox Tail	Vermicelli-Tomato

Look for the red-and-white label



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He shows why six-cylinder cars are now so popular.

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No man is more eminently qualified to prepare such a review. Mr. Coffin's reputation as an engineer and his many contributions to the progress of the automobile industry, both as a designer of many successful cars and a contributor to engineering literature, make this review authentic.

Of course he also describes the HUDSON SIX 54. No discussion of automobile tendencies would be complete that omitted mention of this new car.

It approaches a new ideal, with its true streamline body—135-inch wheel base—six-cylinder motor of extreme flexibility and smoothness—electrical lighting and starting by an improved Delco system—left-hand drive—center control—and entrance to the driver's seat from either side. These are features that make the HUDSON SIX 54 a prominent car in the 1914 announcements.

Can you afford to consider the purchase of any car over $1,500 without knowing what such an authority as Mr. Coffin has to say upon the subject?

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THE TRUE STREAMLINE BODY

HUDSON SIX 54

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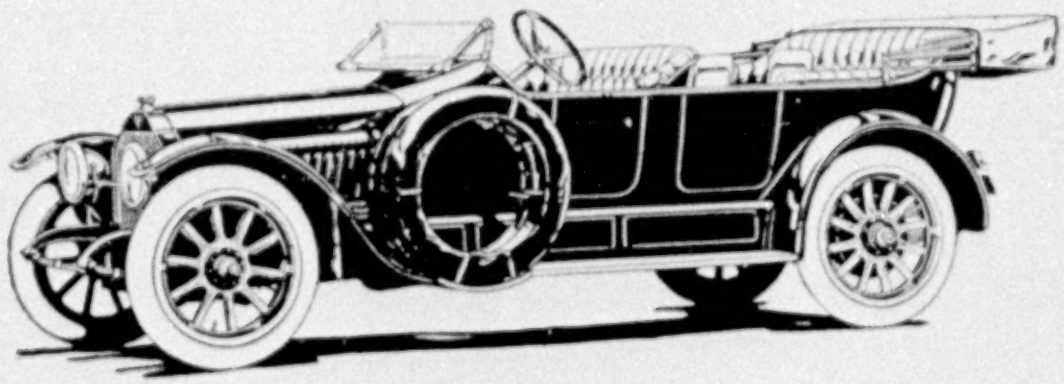

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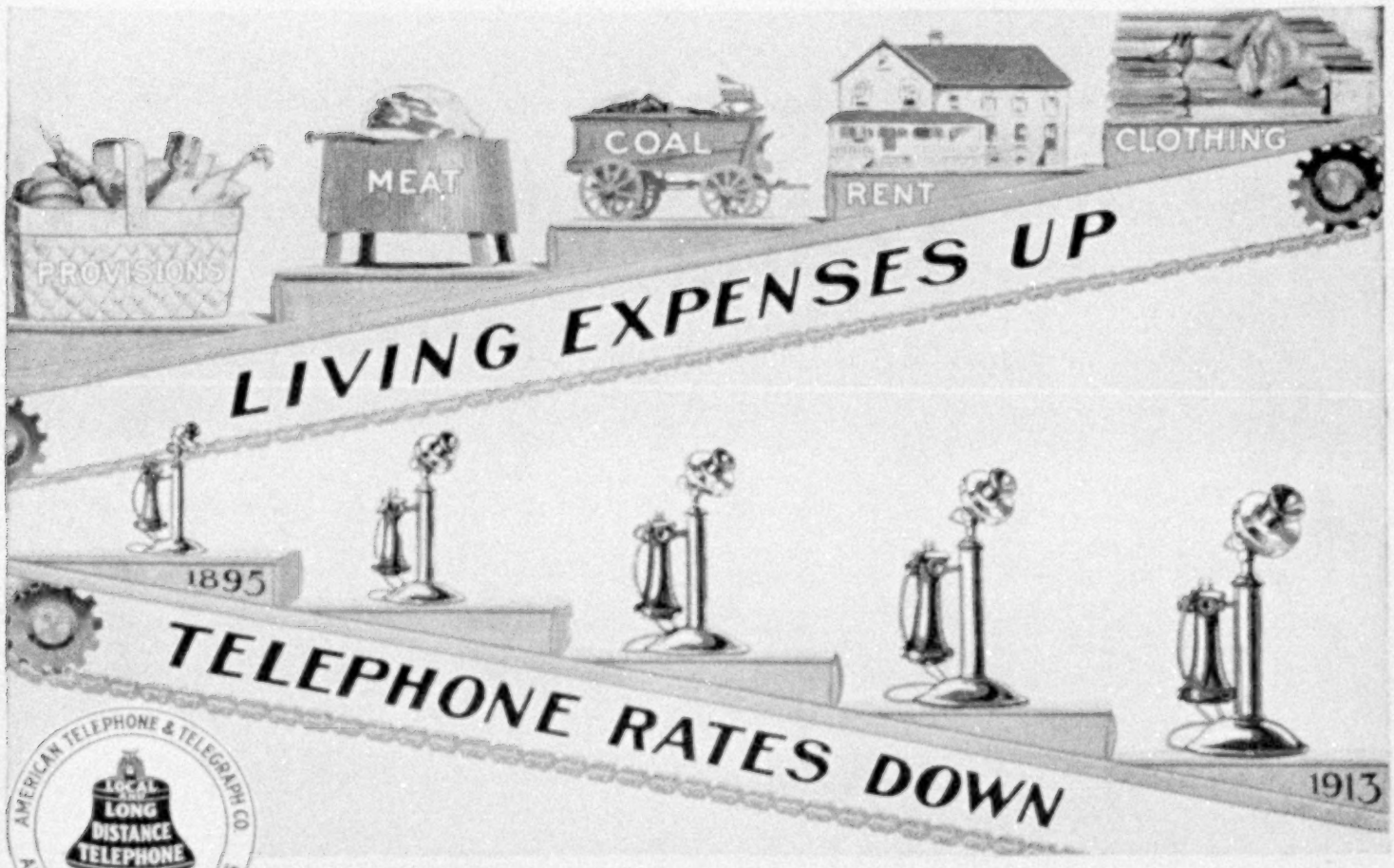

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Consider this significant fact: While most of the necessaries of life have gone up, the price of telephone service, which is one of the essential factors in our commercial and social life, has moved steadily downward.

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One Policy *One System* *Universal Service*

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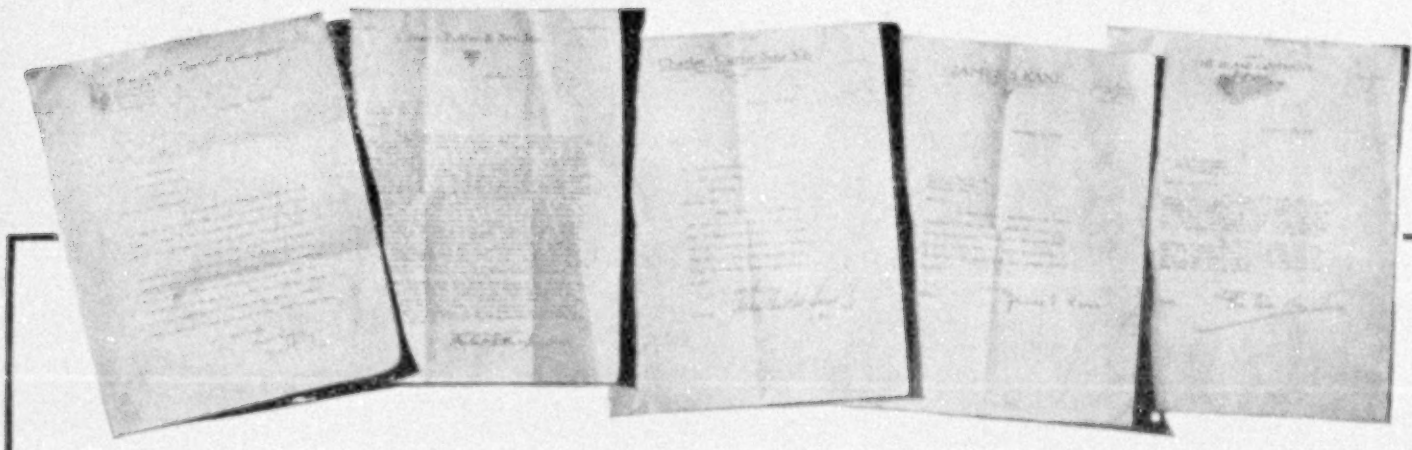

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Here are five letters from five manufacturers to whom you wrote in connection with something you had decided to buy. Their claims being in a measure equal, how may you judge of their reliability? Are their products as good as their word?

If you could visit their plants and meet their officers, you could judge what manner of men they were. This being out of the question, your clue may be had from their stationery. Probably one of the letters has impressed you, though without your having fully realized it. Learn to trust the value of those first impressions.

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So that you may know OLD HAMPSHIRE BOND, we will gladly send you some sample sheets showing examples of modern letter headings. Better still, enclose 10 cents in stamps and we will mail you a liberal sample box of *OLD HAMPSHIRE BOND SEMI-BUSINESS STATIONERY*—a form of paper and envelopes which every business man should have both in his office and at home, for there are many letters that should express a feeling impossible to secure from business stationery.

The selection of stationery for a business house is not a matter of chance. There are papers and printers of all kinds, and in the great majority of cases the house that buys good stationery does so because it is its general policy to use the best under all circumstances. There you will find the best men, the best machinery and the best methods. A house that does not skimp on its stationery, will not on its product.

Look in the letters that come to you for the water-mark OLD HAMPSHIRE BOND (hold them to the light) and prove this for yourself. Then (if we may repeat the suggestion) trust the value of your first impressions.

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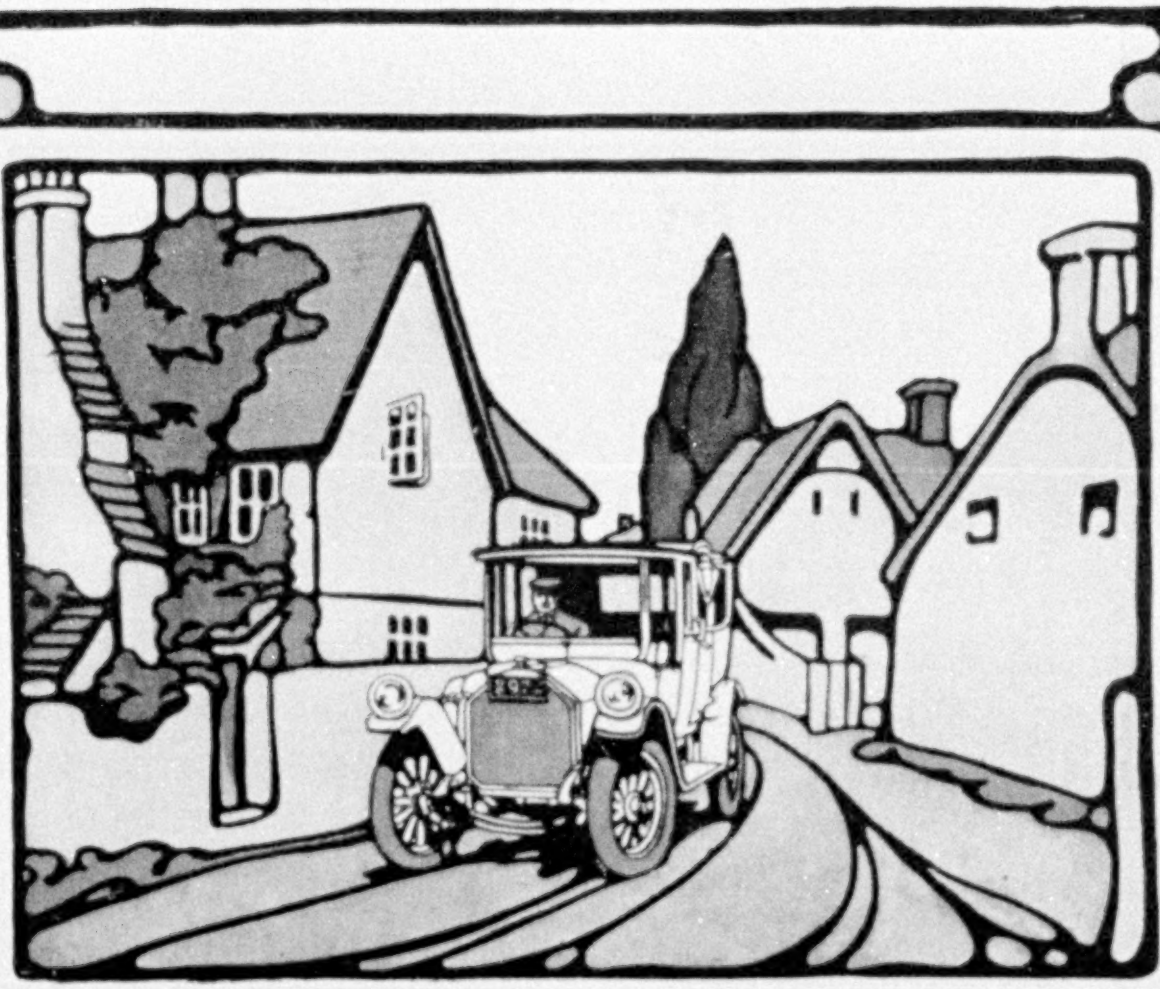

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The amount named includes round-trip railroad fare, Williams, Ariz., to Grand Canyon; three days at luxurious El Tovar hotel, managed by Fred Harvey; a jolly jaunt down Bright Angel trail and back; a carriage ride along the new Hermit Rim Road and to Yavapai Point; also the trip through Tusayan pine forest to Grand View.

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Take a room *with bath*, at El Tovar, and the expense will be a little more.

The Hermit Trail camping trip also will add a few dollars.

In all cases the charges are so reasonable that it is easy to finance a week's stay or longer.

Remember, that besides being a scenic spectacle—worth crossing a continent to look at—you may here enjoy an unique outing.

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And always you have Fred Harvey inns to care for you. El Tovar is like a club in its perfect service.

If you enjoy camping, hire a mule and a guide and lose yourself in the wilderness. Think of sleeping out in the desert and down in the Canyon!

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The trail trips are unlike any mountaineering you ever have tried.

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The **Santa Fe de Luxe**—once a week in winter season—extra fast, extra fine, extra fare—between Chicago and Los Angeles.

Three other daily trains—all classes of tickets honored—they carry standard and tourist sleepers and chair cars.

The Santa Fe meal service is managed by **Fred Harvey.**

On request, will gladly send you our two copiously illustrated travel books, "Titan of Chasms—Grand Canyon" and "To California over the Santa Fe Trail."

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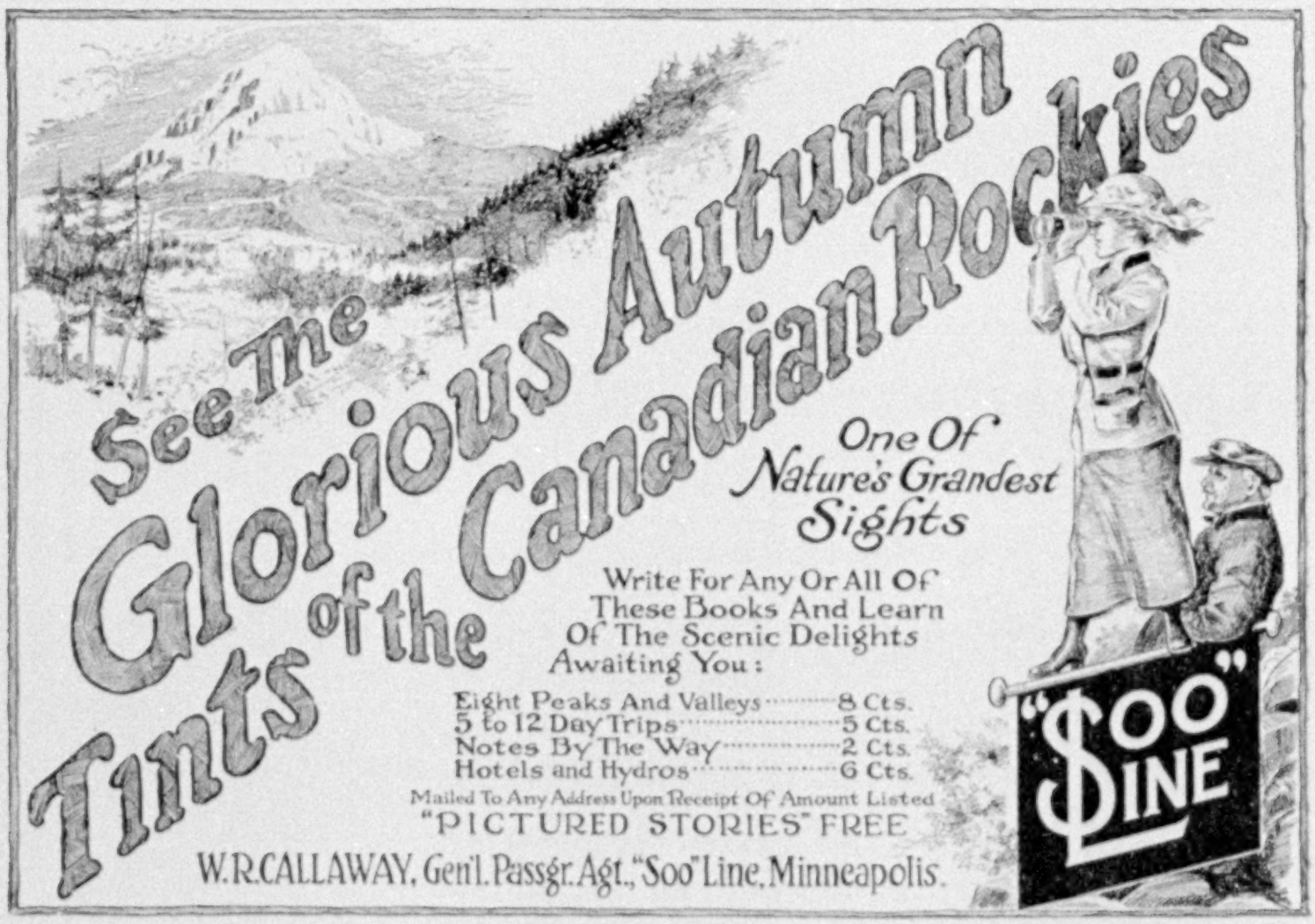
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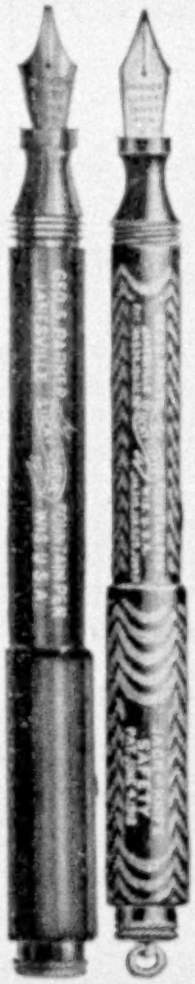

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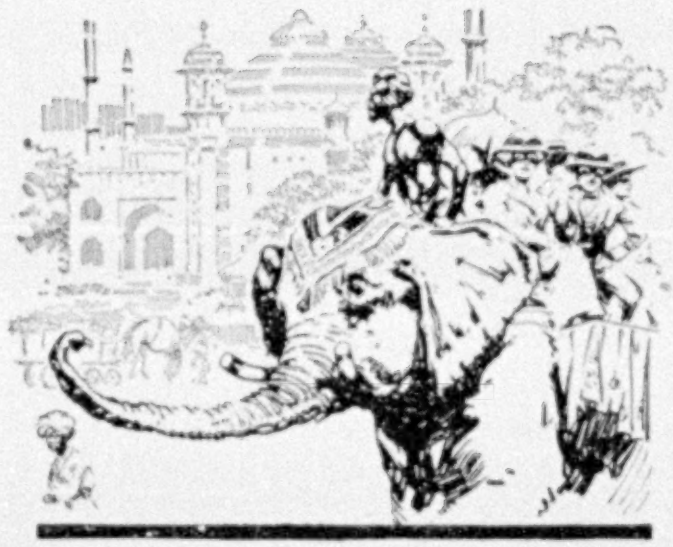

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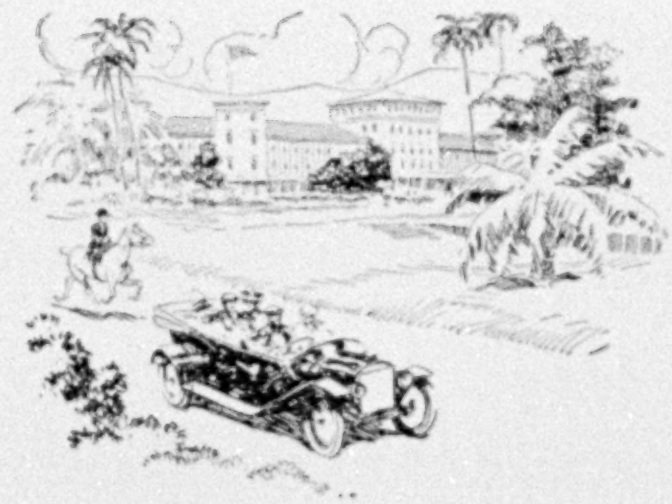

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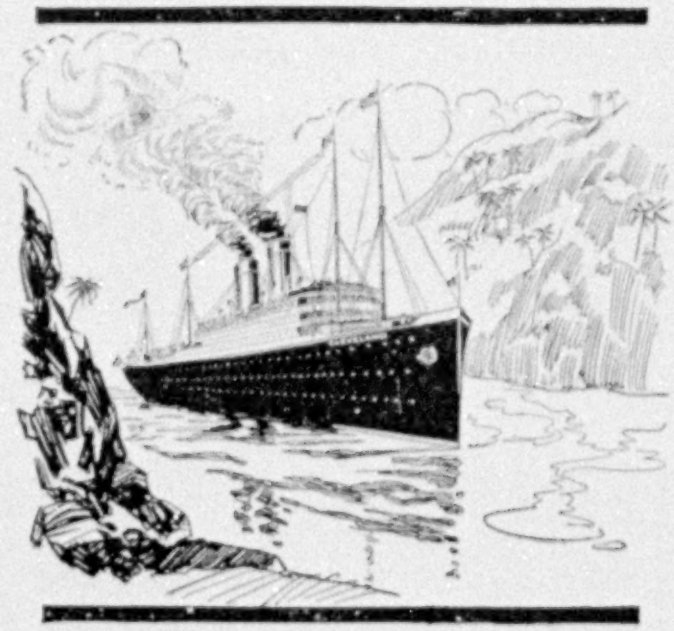

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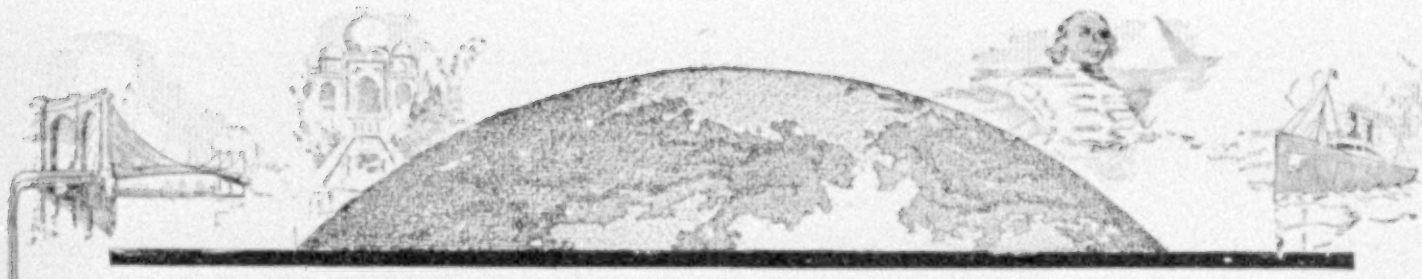

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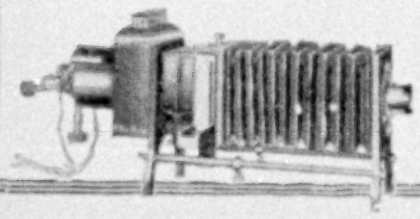

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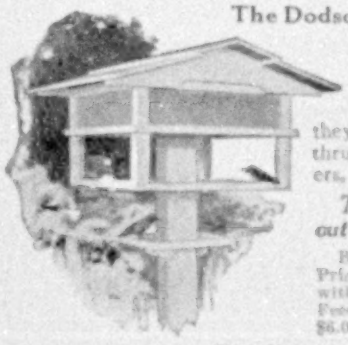

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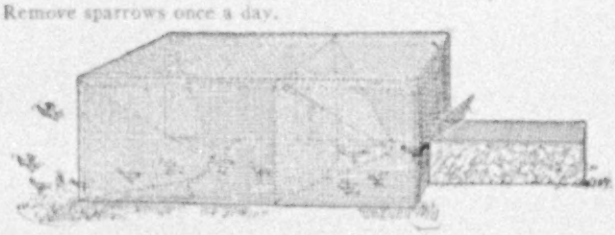

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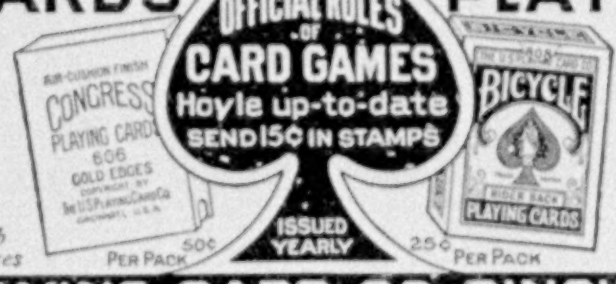

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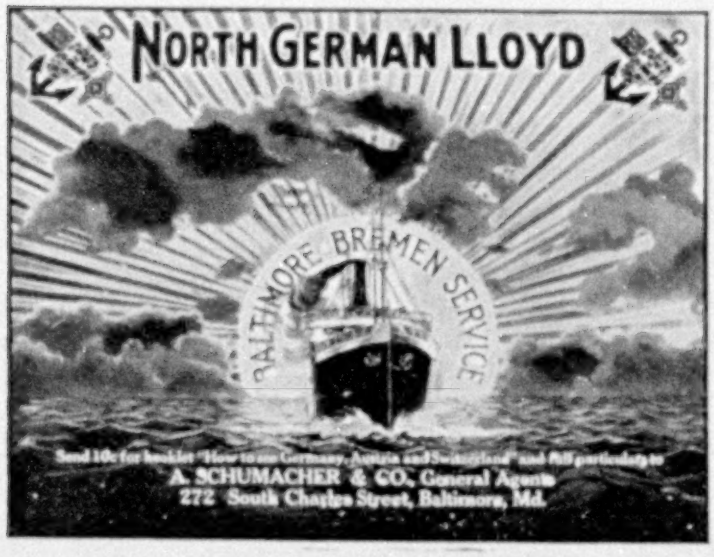

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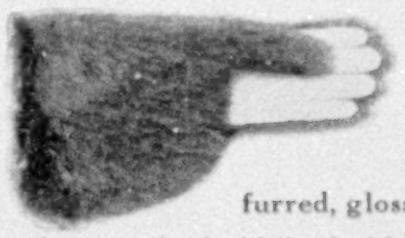

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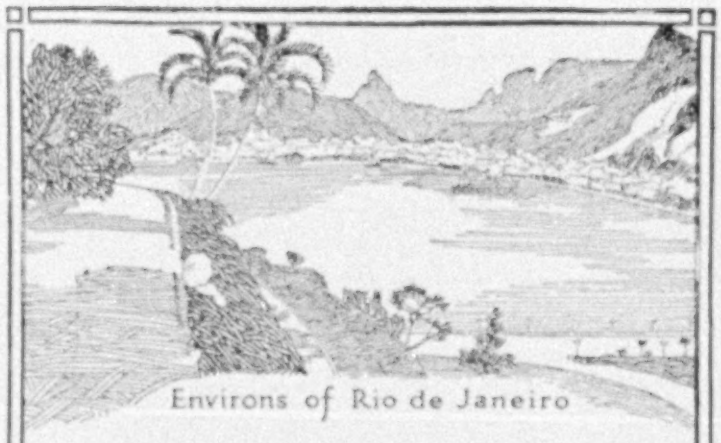

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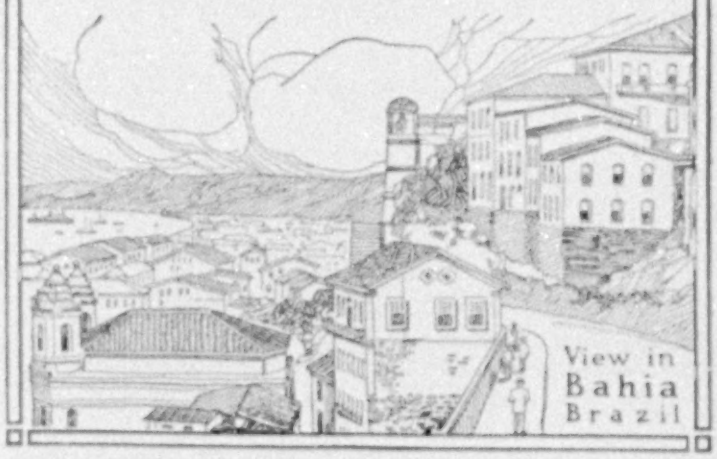

View in Bahia Brazil

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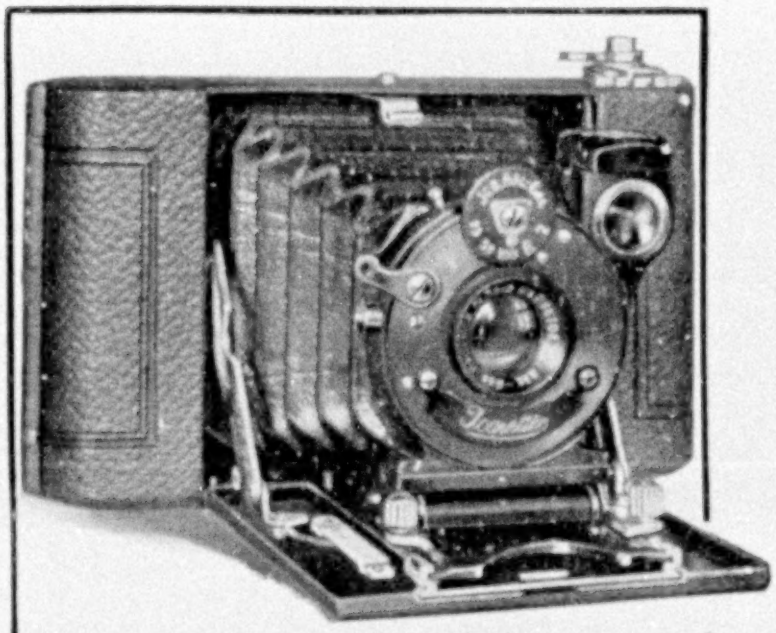

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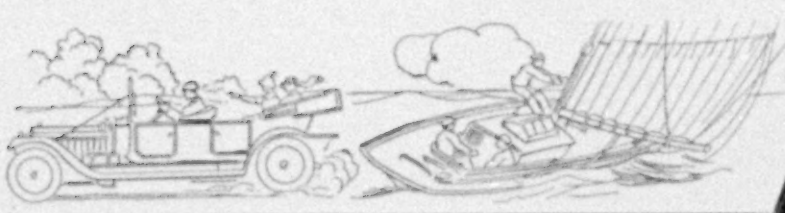

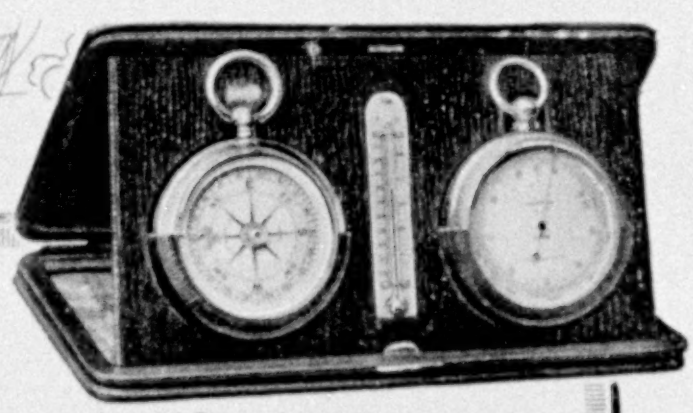

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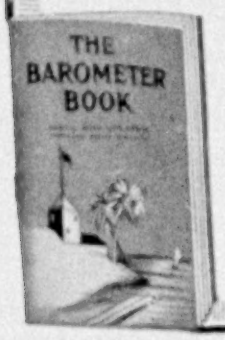

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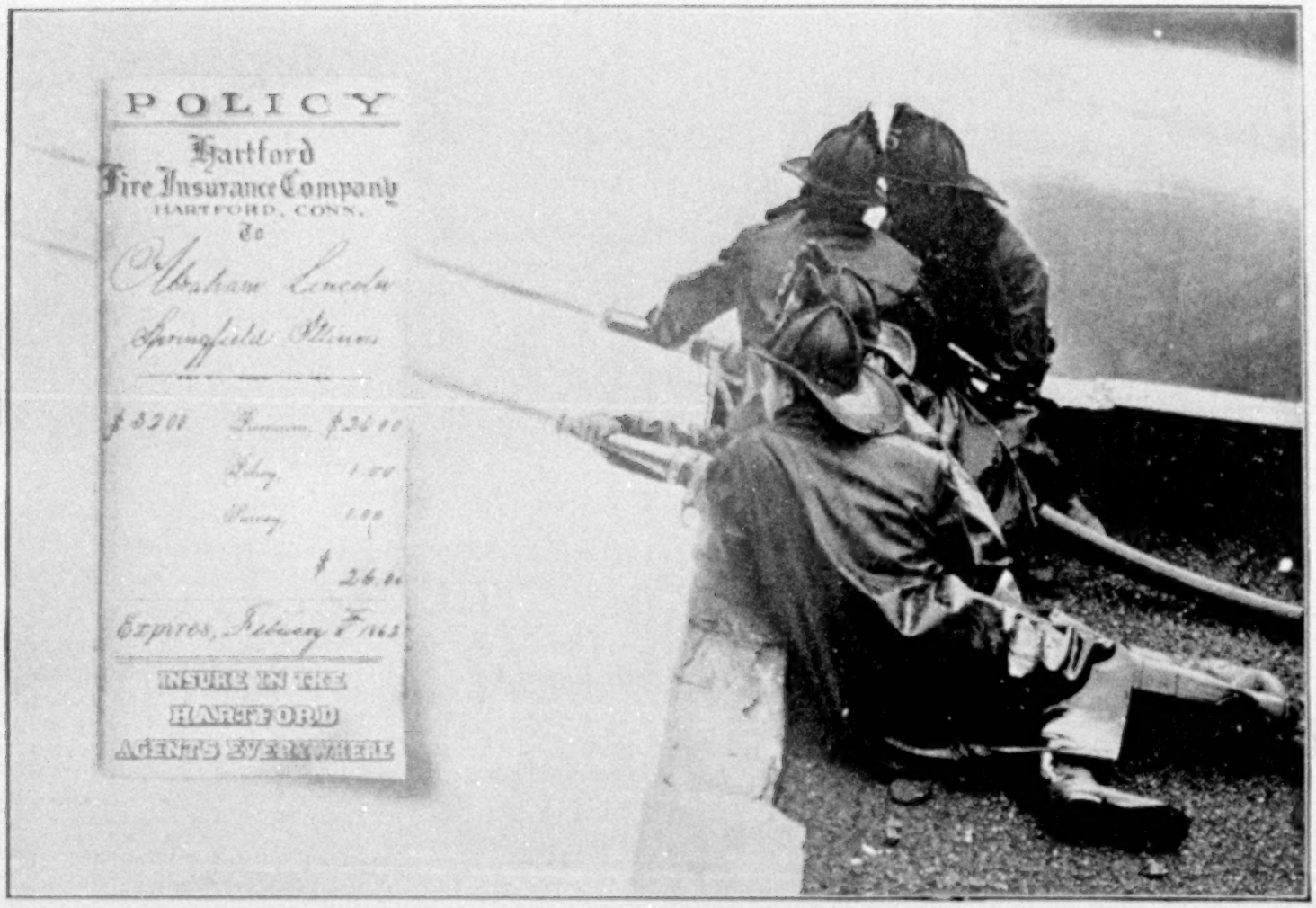

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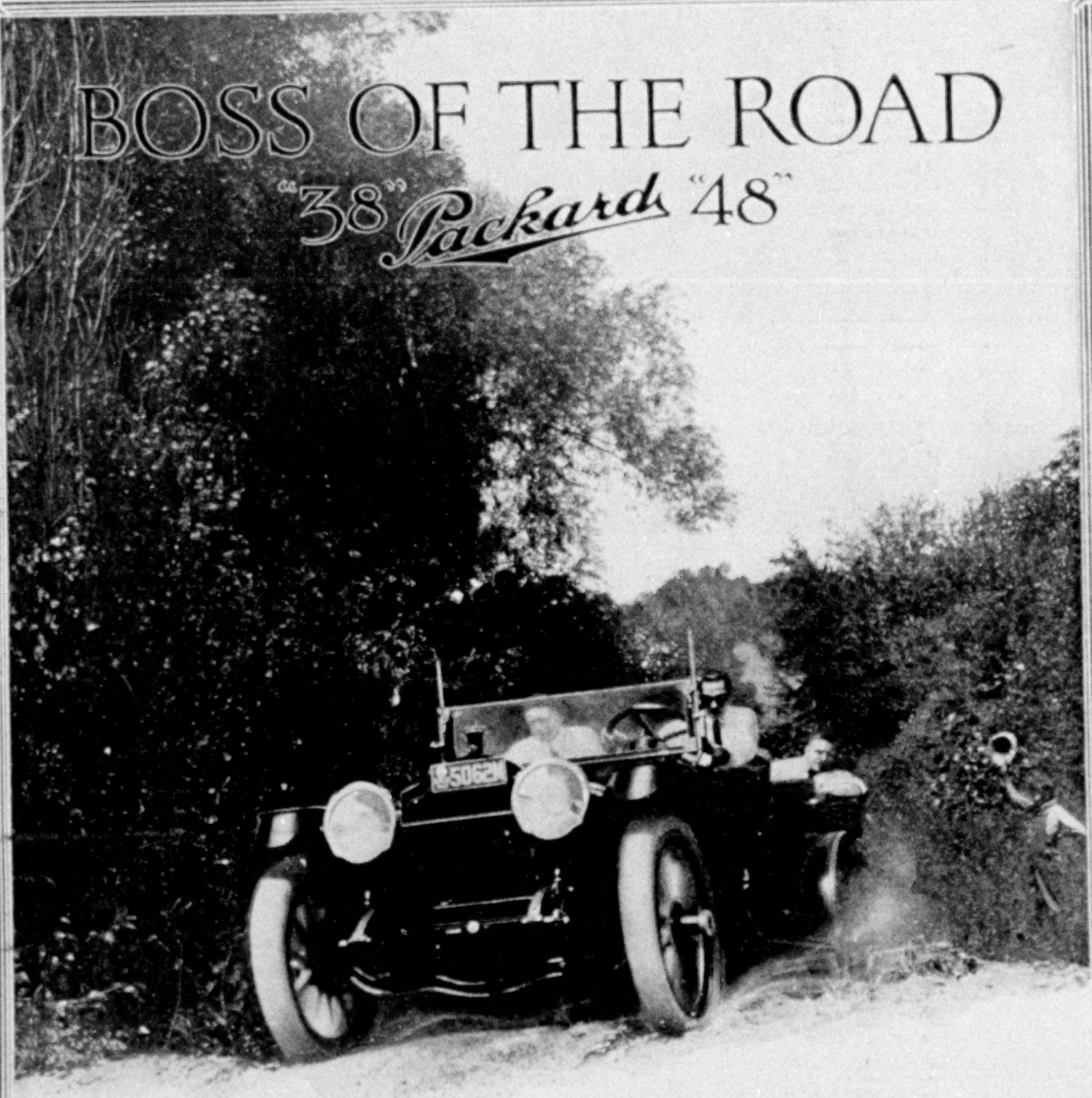

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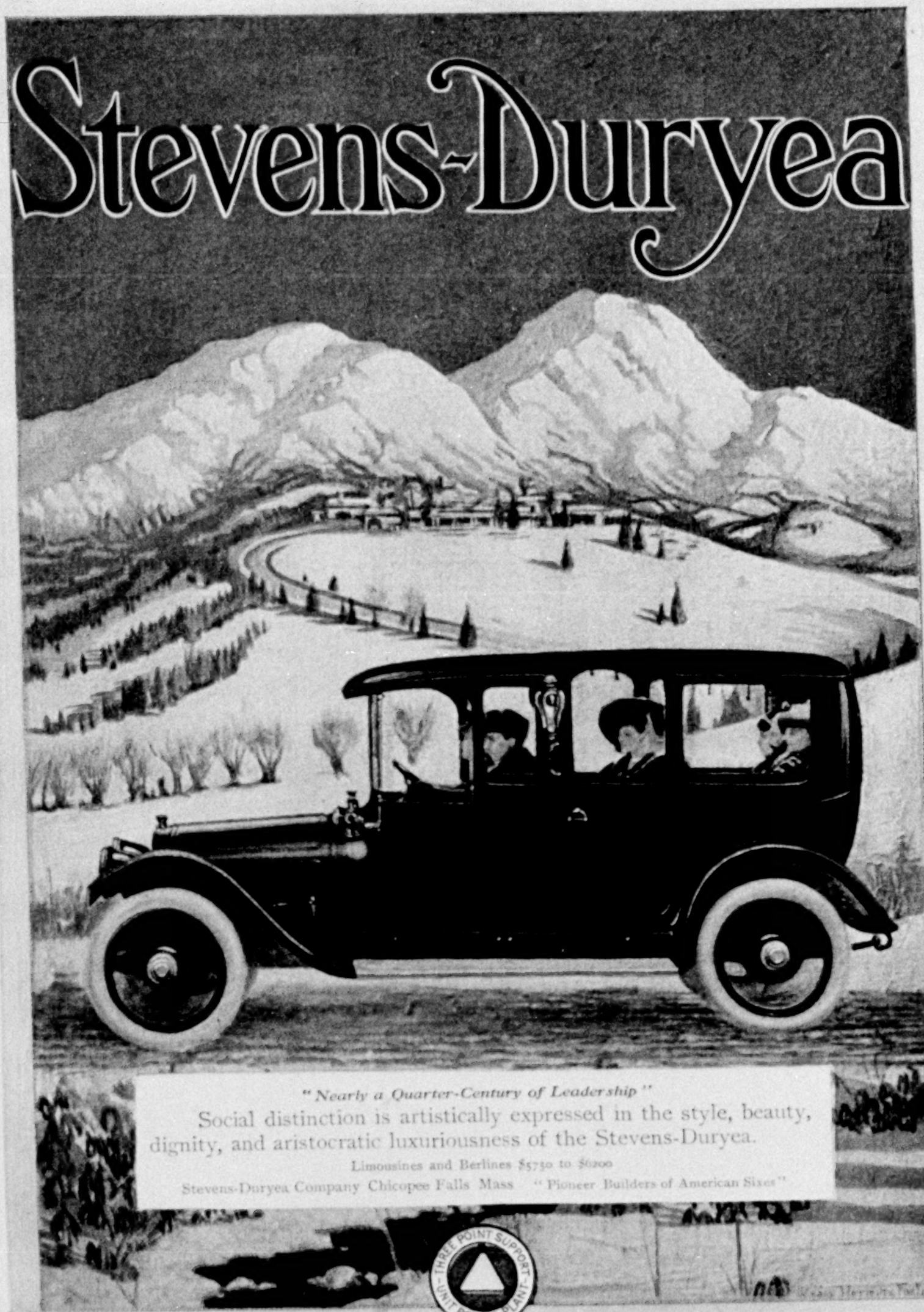

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